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PULMONARY EMBOLISM AND INFARCTION

BY

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It is generally admitted that pulmonary embolism and infarction should be regarded as major circulatory emergencies, and, although these conditions are still more often than not unsuspected or in doubt until post-mortem examination, there is fortunately good reason to assume that their clinical features have in recent years become more clearly defined, and that in consequence the percentage of correct diagnoses has increased materially. Although, however, the essential basis of our knowledge concerning pulmonary embolism and infarction is derived from necropsy studies, considerable advances have now been achieved in the fields of clinical medicine and experimental research, which, in conjunction, have provided evidence of a thoroughly practical and reliable character.

Incidence of Pulmonary Embolism

It cannot be denied, on the other hand, that difficulties in diagnosis frequently arise, and that for this reason—also incidentally, as was pointed out by Barnes (1937), owing to restricted post-mortem examinations—accurate statistics cannot yet be obtained of the mortality rate from pulmonary embolism. It is possible, however, to form some idea of the incidence of the condition from the statistical records that have from time to time been collected. In 567 consecutive necropsies Belt (1934) recorded a mortality rate of 6.5 per cent. from pulmonary embolism; in McCartney's series of 14,419 cases, which included deaths from medical causes and also post-operative, traumatic, and post-partum fatalities, the incidence of pulmonary embolism was 2.72 per cent.; and a very similar figure—namely, 2.07 per cent.—was noted by Collins (1936) in an analysis of 10,940 unselected consecutive necropsies at Los Angeles County Hospital.

For several obvious reasons the above figures admit of only an approximate estimate of the incidence of pulmonary embolism: the condition may be silent or relatively asymptomatic in a large number of cases; it has often been incorrectly diagnosed as coronary occlusion, the clinical picture of the two disabilities being in point of fact very similar; and it is fair to assume that in a large percentage of patients pulmonary embolism is unrecognized owing to limitations in the facilities for post-mortem examinations.

Aetiological Factors

In general terms pulmonary embolism may be regarded as a disability chiefly affecting people at or past middle life, and, although in the large majority of cases it is a post-operative complication, there are also certain other outstanding causes, including various forms of cardiovascular disease—for example, congestive heart failure, coronary occlusion, thrombophlebitis, etc.—and the associated shock and trauma following accidents.

A large variety of factors are concerned in the formation of the thrombus from which the embolus originates, and the more important of these can best be exemplified by reference to typical post-operative cases. In such it is possible to trace primary factors and contributory causes. The former include local trauma of the tissues, blood vessels, etc., and the presence of organisms; the latter group comprises several morbid developments as follows: (1) Slowing of the blood stream, induced partly by recumbency and diminished muscle action, also partly by constricting bandages and post-operative immobility and by the shallow respiration which impairs aspiration from the great veins of the chest and abdomen. (2) Chemical and physical changes in the blood—for example, dehydration with concentration of the stream and an increase in the fibrinogen, the calcium content, and the platelet count. (3) Localized areas of injury in the vascular endothelium.

More often than not the primary thrombosis occurs in the external iliac, the femoral, or the saphenous veins; but certain other vessels—namely, the inferior vena cava and the pulmonary and internal iliac veins—may be responsible for the condition, as also may the heart itself in the advanced stages of myocardial failure. It is common knowledge that intracardiac thrombosis is a potential development in the decompensation process of heart disease, and such a condition is also frequently responsible for thrombus formation in the extracardiac circuit, the high incidence of the latter complication being well exemplified in a recent analysis by Belt (1934), who found that of eighty-three patients with congestive failure thirty-six developed venous thrombosis and twenty-five of these showed evidence of pulmonary embolism.

Diagnosis

The clinical aspects of pulmonary embolism are singularly complex in that their range of severity varies from the mild and relatively symptomless cases to those in which the signs prior to a long protracted illness or sudden death are unmistakable.

Numerous ingenious experiments have been devised with a view to assessing the morbid effects of embolic obstruction in the pulmonary circuit, and those of Cohnheim (1889) are deserving of special mention. He took simultaneous records of the pressure in the right auricle and the femoral artery, having previously applied a ligature to the pulmonary artery: no appreciable change occurred in the femoral or jugular curves even when the pulmonary artery was constricted to a considerable extent, but further tightening of the ligature brought about a sudden drop in the arterial pressure, with an equally sudden rise in the venous manometer reading, and death ensued as the result of the gradual removal of blood from the arterial circuit.

Later researches (Dunn, 1920; Gibbon and Churchill, 1936; Gibbon, Hopkinson, and Churchill, 1932; Haggart and Walker, 1923; Mann, 1917) have amply confirmed Cohnheim's deductions. Gibbon and his colleagues (1932) were of the opinion that pulmonary artery obstruction up

to 60 per cent. of its cross-sectional area had no appreciable effect on the arterial and venous blood pressures, but that occlusions of from 60 to 85 per cent. were productive of a reduced cardiac output and a rise in the venous pressure, and that the obstruction was fatal when 85 to 100 per cent. of the artery was occluded. These conclusions have been widely approved and, as was recently noted by Horn and his colleagues (1939), they emphasize the extreme degree (? 80 per cent. of the lumen or more) of obstruction that must exist in the pulmonary circuit to effect a fatal reduction in the systemic blood pressure.

The above findings more especially concern embolic obstruction of the main pulmonary artery or its major branches, and the clinical picture of such an accident is moderately distinctive. In a certain number of cases the event is immediately fatal; in others a characteristic series of signs and symptoms may be observed for varying periods before death, the patient being suddenly seized with urgent breathlessness, faintness, and feelings of alarmingly severe substernal oppression which tend to persist in spite of treatment. The physical examination discloses the shock syndrome in its entirety: characteristic signs include pallor, sweating, lividity, and dilated pupils; the pulse is rapid and soft and the blood pressure considerably lowered; the respiratory rate is accelerated and its excursion usually much diminished; collapse, often ushered in by uncontrollable vomiting, deepens, and unconsciousness as a general rule preludes the fatal issue.

Massive Pulmonary Embolism

The terminal phases of massive pulmonary embolism, though at times persisting for some days, are usually more rapidly progressive, as in the following case.

A middle-aged woman was admitted to hospital suffering from an extreme degree of congestive heart failure secondary to chronic rheumatic carditis. The heart was considerably enlarged; there were valvular defects in the form of mitral stenosis and tricuspid incompetence, and the rhythm was noted to be that of an uncontrolled auricular fibrillation. *X*-ray examination confirmed the cardiac enlargement, with aneurysmal dilatation of the left auricle, enlargement of the pulmonary conus, and bilateral pulmonary congestion. The patient made what appeared to be a perfectly satisfactory recovery following two weeks of orthodox treatment, but two days later she developed urgent signs of acute circulatory failure, the immediate sequel to a somewhat strenuous action of the bowels. Outstanding initial symptoms included severe pain across the front of the chest and an extreme degree of breathlessness; the skin was cold and moist, the face pallid, and the lips and extremities deeply cyanosed; the pulse rate was a grossly irregular 140 and the blood pressure approximately 90/40; the heart sounds were faint at all areas; the respiratory excursion was shallow and fine crepitations were audible over the lungs. The condition became rapidly worse in spite of treatment. A short period of restlessness supervened prior to unconsciousness, and death occurred approximately two hours after the onset of the seizure.

The post-mortem examination revealed massive embolization of the pulmonary conus with extensions into its main branches; the right auricle contained a large brittle mural clot which showed obvious signs of recent fragmentation and was evidently responsible for embolic obstruction of the entire pulmonary circuit.

In contradistinction to the rapidly fatal cases it must be clearly recognized that with medium-sized and small pulmonary emboli a certain number of patients survive the initial shock of the accident, and these in due course may later develop signs of pulmonary infarction and varying degrees of myocardial ischaemia.

As judged by necropsy evidence in a large number of cases small pulmonary emboli are subclinical developments. Others—more particularly those patients suffering from chronic circulatory affections, in whom there is always a risk of thrombosis in the pelvic or other large veins—may present signs significant enough to warrant a diagnosis: typical examples are those patients who, having reached a perfectly satisfactory convalescence, suddenly and for no apparent reason develop urgent symptoms, including restlessness, thoracic oppression, orthopnoea, tachycardia, and varying degrees of collapse. In such cases a guarded prognosis is essential, for although complete recovery from the initial seizure may ultimately ensue there is always the possibility of serious recurrences developing.

Differential Diagnosis of Pulmonary Embolism and Coronary Thrombosis

A further practical consideration is the similarity which characterizes the early stages of pulmonary embolism and coronary thrombosis, the cardinal signs being so singularly alike in the two conditions that their differential diagnosis is often an intricate problem. The clinical phenomena common to both lesions comprise the following imposing list: uncontrollable pain in the chest, tachycardia, rapid respiration, pallor, cyanosis, and a soft and frequently imperceptible pulse; added to these one usually finds a falling blood pressure, varying degrees of shock with syncopal tendencies, sweating, vomiting, etc., and cardiographic signs typical of myocardial ischaemia.

It is obvious from the above that additional evidence must be forthcoming for the differential diagnosis of pulmonary embolism and coronary thrombosis. The past history of the patient and the circumstances leading up to the onset of the illness will often furnish valuable confirmatory details: previously existing heart disease, an exhausting period of decompensation, and the clinical phenomena suggestive of long-standing hypertension or a history of effort angina would all tend to favour the development of coronary thrombosis. On the other hand, one might reasonably suspect the occurrence of pulmonary embolism if the acute seizure is a sequel to a recent operation or accident, either of which conditions may be responsible for primary thrombotic foci in the venous trunks; moreover, the pain of pulmonary embolism is usually referred to the side of the chest rather than to the substernal region, though as a general rule there may be no obvious clinical evidence of pulmonary infarction in the early stages of the illness. Certain other features peculiar to pulmonary embolism include extreme grades of cyanosis and, as exemplified in the following case, urgent degrees of breathlessness associated with shallow respiration, the discomfort in the side being intensified by any attempt to increase the depth of the breathing.

A man aged 63 had a series of injections for varicose veins. A septic focus developed at the site of the fifth injection, and the patient was then admitted to a nursing home. The leg wound gradually healed under treatment, but convalescence was delayed by recurring "heart attacks" (four to five in number) which were characterized by the acute onset of urgent breathlessness, severe pain in the chest, faintness, collapse, and feelings of indigestion. Following the heart attacks the patient gradually developed congestive heart failure, and the objective signs three months later were as follows: heart enlarged to the right and to the left; apex impulse in the fifth space four and a half inches from the midline; rhythm regular except for an occasional premature contraction; blowing systolic murmur at the apex region; pulse 100, regular except for an occasional intermission; vessels normal for age; blood pressure 130/90; a moderate degree of jugular stasis when recumbent; slight oedema of both ankles; right hydrothorax; liver enlarged and tender. Electrocardiogram: T waves flattened in Leads I and II; prominent Q waves, deformed R-T segments, and sharply

inverted T waves in Lead III; S waves slurred and exaggerated in depth in Lead IV R.

Comment.—A review of the history and the clinical features of this case suggest that the so-called "heart attacks" were in point of fact attacks of pulmonary embolization, and in spite of the absence of evidence of gross pulmonary infarction the cardiographic abnormalities were regarded as confirmatory of this diagnosis.

Pulmonary Infarction

Apart from cases of massive embolization in which pulmonary oedema occurs rather than haemorrhagic consolidation, the incidence of true infarction with moderate-sized emboli is relatively small. Certain conditions, however, including chronic cardiac disease, post-operative invalidism, septic wounds, etc., appear to be essentially favourable for the formation of pulmonary infarcts, the responsible factor being passive hyperaemia in the lungs, and under such conditions a backward flow of blood stagnates in the vessels and tissues of the area peripheral to the obstructed arterial trunk. The infarct so produced is usually conical in shape, and a fibrinous deposit covers the visceral pleura of its base, which projects slightly above the surrounding surface.

The diagnosis of pulmonary infarction is chiefly based on the clinical picture, partly also on physical signs. In an average case a slightly raised temperature for a few days and a relatively rapid pulse rate may be the only indications that a focus of phlebitis and venous thrombosis which may be responsible in due course for embolization in the pulmonary circuit, and, later, for a haemorrhagic infarct, is in process of formation. Early indications of the latter are as a rule forthcoming within twenty-four hours of the embolic seizure: the temperature and the pulse rate rise abruptly, the respiration quickens, and the symptoms of shock and mental anxiety are materially intensified. Pain, exaggerated by deep breathing, is another early symptom, the underlying cause being acute pleurisy in the region of the infarct. As, moreover, the large majority of pulmonary infarcts develop in the lower lobes (the right more often than the left) the diaphragmatic type of pleurisy is relatively infrequent, and pain in such circumstances may be referred to the neck and the shoulder via a viscero-cutaneous reflex, the diaphragm and the phrenic nerve being embryological developments from the cervical segments. It is further noteworthy that in certain cases of pulmonary embolism with infarction the pain may be clinically indicative of myocardial ischaemia, and, although it is nowadays recognized that such a condition may be induced by pulmo-coronary reflexes (Scherf and Boyd, 1939), it can be readily appreciated how closely the clinical picture of pulmonary embolism may simulate that of coronary occlusion.

It remains to mention the irritative and unproductive cough that as a rule develops on the second or the third day following the infarction, also the possibility of haemoptysis, which, though formerly considered one of the clinical signs of pulmonary infarct, occurs, in point of fact, in a small minority of cases and is no longer regarded as an essential diagnostic feature (Hampton and Wharton, 1920; Scherf and Boyd, 1939).

The physical signs of pulmonary infarction are rarely distinctive—more often than not the examination is entirely negative; on the other hand, a friction rub may be audible on the second or third day, there may be a circumscribed area of dullness with rales and altered breath sounds, and there may be diminished expansion on the side of the lesion.

X-ray examination is often a valuable aid in the diagnosis, and although it must be admitted that quite large infarcts may escape radiological investigation, certain characteristic manifestations are frequently noted: a clouding in the region of the costo-phrenic angle may be observed within the first twenty-four hours; the hilar shadows on the side of the infarct may be accentuated; there may also be a moderately well defined area of pulmonary consolidation, which for a few days will tend to increase and then to diminish gradually in size and density.

Investigation with the Electrocardiograph

The above-mentioned clinical picture of pulmonary embolism and infarction should as a general rule be supplemented by electrocardiographic investigation, which in recent years has acquired an approved diagnostic value. McGinn and White (1935) found that pulmonary emboli in experimental rabbits and cats induced certain changes of rhythm, including sino-auricular tachycardia, auricular and ventricular fibrillation, also auriculo-ventricular dissociation and, with complete occlusion of the pulmonary artery, inversion of the T waves. In explanation of these changes the authors suggested asphyxia as a likely cause or, alternatively, dilatation of the heart. Confirmatory evidence of myocardial embarrassment in patients suffering from pulmonary embolism is also forthcoming. Barnes (1936) described electrocardiograms with characteristic abnormalities as follows: (1) A deep S wave and T waves of low origin in Lead I. (2) Diphasic T waves and depression of the R–T segments in Lead II. (3) Elevation of the R–T segments, inversion of the T waves, and abnormally deep Q waves in Lead III.

Love and his colleagues (1938) noted somewhat similar electrocardiographic signs, including depression of the S–T segments in Leads I and II, flattening or inversion of the T waves in Lead II, and an abnormally deep Q wave, also inversion of the T waves, in Lead III. These signs they attributed to dilatation of the right ventricle, and, incidentally, it is obvious that the curves of cases of pulmonary embolism closely resemble those of myocardial infarction. It is not surprising, therefore, that at times it may be extremely difficult to differentiate between the two conditions: the cardiographic evidence alone is insufficient, for, as Horn and others (1939) have recently emphasized, the characteristic curves in cases of pulmonary embolism are often identical with those from patients with infarction of the posterior wall of the heart, and in such circumstances serial curves will be essential to demonstrate the progressive changes typical of coronary occlusion as opposed to the pulmonary embolism records in which these changes may not occur. It is obvious from the above that accuracy in diagnosis will necessitate careful correlation of all the evidence available from the patient's history, the examination findings, and the electrocardiograms, and in practice one must always be prepared to recognize the possibility of pulmonary embolization if the clinical picture of an assumed case of coronary occlusion happens to be to any extent atypical (Averbuck, 1934). It is essential, moreover, that one should have in mind a clear conception of the intrinsic cardiac manifestations which characterize the syndrome of pulmonary embolism. These include the development of (*a*) the so-called acute cor pulmonale and (*b*) acute ischaemic myocardial damage.

Acute Cor Pulmonale

The acute cor pulmonale was first described by Paul White (1935) as being a characteristic cardiac development following pulmonary embolism. His observations were based upon four cases in which the presenting symptoms signified right heart embarrassment. The first case was that of a patient recovering from an operation

who suddenly developed acute substernal distress with breathlessness and collapse. The pulse rate was 130 and the blood pressure 90/70; there was pallor and a moderate degree of cyanosis. Further signs of particular interest included visible and palpable systolic pulsation in the second space at the left sternal margin, a to-and-fro friction rub to the left of the sternum in the second and third spaces, and accentuation of the second sound at the pulmonary area. The condition was first thought to be one of coronary thrombosis, but this diagnosis was changed later to pulmonary embolism with acute cor pulmonale. Of the other three cases, one occurred following a sprained leg, another after an attack of phlebitis, and the third as a sequel to an operation, this last case being confirmed by radiological examination and by cardiographic peculiarities, including S waves of exaggerated depth in Lead I, low-voltage T waves in Lead II, and deep Q waves and inverted T waves in Lead III.

In assessing the above cases the author concluded that if a pulmonary embolism is massive enough to cause dilatation of the right heart the initial shock syndrome may prelude the development later of acute cor pulmonale, a condition recognizable clinically by the following signs: (1) an area of prominence and pulsation in the second and third spaces to the left of the sternum, also a systolic murmur, a to-and-fro friction rub, and an accentuated second sound at the pulmonary area; (2) dilatation and exaggerated pulsation in the jugular veins; (3) gallop rhythm; (4) fever and leucocytosis within a few hours of the onset of the illness; and (5) the later development of a cough, possibly with blood-stained sputum, pleural pain and friction, and signs of consolidation which may or may not be capable of radiological demonstration.

Myocardial Ischaemia

It is generally agreed that myocardial ischaemia must be regarded as an integral factor in the syndrome of pulmonary embolism, for not only is its symptom-complex the exact counterpart of that obtaining in frank cases of myocardial infarction the sequel to coronary occlusion, but its characteristic cardiogram is essentially similar to that recorded in cases of posterior basal myocardial ischaemia; further, as was pointed out by Horn and his colleagues (1939), sudden death following multiple small emboli in relatively few branches of the pulmonary artery can more reasonably be ascribed to a cardiac pathology than to significant interference with the pulmonary circulation.

Several theories have been advanced to explain the presence of acute myocardial ischaemia in pulmonary embolization, the more important being shock, anoxaemia, and exaggerated pulmo-coronary nervous reflexes.

Shock.—Some degree of circulatory shock is invariably present in patients suffering from occlusion of the pulmonary circuit, and, having in mind its significant clinical features, which include a decline in the blood pressure, a diminution in the cardiac output, and a reduced flow in the coronary vessels, it is reasonable to assume that a condition of shock may be responsible *per se* for the development of myocardial ischaemia. It should further be noted that the trend of modern opinion in regard to the aetiology of the circulatory and cardiac manifestations of pulmonary embolism is distinctly favourable to the shock-syndrome theory, which, in the more severe cases with urgent degrees of heart failure, explains also their comparative freedom from symptoms of acute cor pulmonale.

Anoxaemia.—It is obvious that varying grades of anoxaemia are to be expected as the result of embolic interference with the pulmonary circulation, and in its more severe forms the condition may be productive of myocardial ischaemia; moreover, it has been pointed out by Gibbon and Churchill (1936) that, although the blood pressure does not fall even with occlusion of 85 per cent. of the pulmonary vascular bed, there is distinct oxygen unsaturation of the arterial blood when more than 40 per cent. of the pulmonary circuit is occluded.

Pulmo-coronary Nervous Reflexes.—It has been conclusively demonstrated that experimental pulmonary emboli not large enough to cause significant reduction in the pulmonary blood flow may be responsible for myocardial injury, and this, according to certain authorities, is the direct sequel to reflex vasoconstriction of the coronary vessels. Scherf and Schönbrunner (1937) were of the opinion that pulmonary embolization originated strong stimuli in the lungs and pulmo-coronary nervous reflexes which induced vasoconstriction in the coronary vessels and myocardial ischaemia secondary thereto; further, it has been suggested that, as pulmonary embolization more particularly augments the load on the right ventricle, it is in this chamber that the more significant effects of myocardial ischaemia are likely to be especially severe (Scherf and Boyd, 1939).

The above-mentioned nervous theory has been to some extent discounted by Horn and his colleagues (1939), their contention being that, even assuming a diminution of coronary flow by vagal constriction, such an effect would be materially modified by the coexisting fall in blood pressure, the increased heart rate, the reduced cardiac output, and the anoxaemia, apart from which they emphasize the absence of typical inhibition symptoms—for example, slowing, heart-block, and ventricular standstill—in cases of pulmonary embolization. Otherwise, these authors stress the shock syndrome as being the primary cause of acute myocardial ischaemia in cases of pulmonary embolism, and in their view the ischaemic manifestations are more likely to occur if there is cardiac hypertrophy or coronary narrowing, also if life is adequately prolonged after the initial embolism. Further investigations have confirmed these views, and a recent article by Friedberg and Horn (1939) on the subject of myocardial infarction without coronary thrombosis records ischaemic necrosis in twelve cases of pulmonary embolism. The myocardial lesions were chiefly located in the left ventricle and its papillary muscles, and the coronary vessels showed varying degrees of thickening and narrowing. It was the opinion of these authors that shock and asphyxia were primarily responsible for the myocardial damage, and coronary spasm via vagal reflexes was, they thought, possibly a subsidiary factor.

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P. JOURNEAULT (*Thèse de Paris*, 1940, No. 265) records an outbreak of sixteen cases of poliomyelitis which occurred in October and November, 1938, in the Indre department of France. The ages of the patients ranged from 18 months to 17 years. Apart from the first case, which occurred in an infant, all the children attacked attended the same school. There were two examples of familial cases—namely, the first in two cousins living on the same farm, and the second in a brother and sister, who both died of ascending paralysis. There is no evidence of the disease having been conveyed by animals. Two patients died, in nine the paralyses became permanent, and five made a complete recovery.

MUSCULAR RHEUMATISM

LOCAL INJECTION TREATMENT AS A MEANS OF RAPID RESTORATION OF FUNCTION

BY

MARTIN BUTTON, F.R.C.S.

I choose the term "muscular rheumatism"—by which I mean such conditions as stiff neck, lumbago, and the similar malady sometimes affecting the lower limb that I will allude to as "pseudo-sciatica"—because it makes no pretence to a knowledge of pathology we do not in fact possess. The clinical features of these cases are stiffness of the affected muscles, associated with localized tender spots and, in the more chronic forms, a reference of the pain to remote parts of the segmental arc concerned. Cases having a traumatic origin are aetiologically in a separate class; they run a course like that of the chronic forms of muscular rheumatism, and often prove amenable to treatment on similar lines.

My excuse for these notes is to bring forward a method of treatment which secures not only immediate relief from pain but prompt restoration of function. Owing to the number of working hours lost to the nation the latter at the present time is of great importance.

Some years ago, when disabled by an attack of lumbago, it occurred to me that the injection of a local anaesthetic into the painful part would at least enable me to move. Much to my surprise, not only was pain abolished and function restored within a matter of minutes but the attack failed to return. I have now had experience of enough cases to convince me that in the acute forms, at least, the success of this method of treatment can be relied upon. Though I have since become aware that the same idea has occurred to others, I believe the method is not so widely known and adopted as it deserves to be.

Technique

It is necessary to use a local anaesthetic of such strength that up to 25 c.cm. may safely be employed at one treatment. I have found the preparation sold under the name "novutox" convenient and satisfactory, though I have no doubt that any 2 per cent. mixture of novocain and adrenaline would be equally efficacious.

In choosing the site I am guided by the position of the pain brought on by active movement and by the point of maximum tenderness on deep pressure. I have obtained the best result by placing the injections one-eighth of an inch beneath the surface of the fascia covering the affected muscle, the needle being inserted obliquely through the skin, and the fascia then being felt for with the point. Experience has taught me that 0.5 c.cm. at this level is more effective than a larger quantity injected into the substance of the muscle. On this account I now use a 2-c.cm. syringe, and through a single skin puncture inject one-quarter of this amount, in three or four directions, through separate punctures in the fascia.

Owing to the fact that when two or more painful stimulations are present at the same time only the strongest of these is appreciated, it is usually found that, though the pain complained of has been relieved, attempts at movement will reveal that other sites are affected.

In acute cases the injection is painful, especially if done rapidly. It is advisable, therefore, to warn the patient of this, and to inject the first few minims slowly in each new direction. On psychological grounds it is also as well to warn the patient of the tremor which follows the administration of adrenaline, and to see that a few minutes after treatment the affected muscle can be put through a full range of active movement without pain. An hour's rest suffices for recovery from the effect of the adrenaline, after which the patient should get up and move about, resuming his occupation as soon as possible. Neglect of this advice may result in recurrence, which, though not so severe, calls for further injections if complete restoration of function is to be secured. Stiffness is usually felt in the affected part for several days, whether as the result of the treatment or the malady I am unable to say. It passes off, however, without the need for further intervention.

Clinically, non-traumatic forms of muscular rheumatism may be divided into acute and chronic types, though the one may merge into the other.

Non-traumatic Rheumatism: Acute Types

Stiff neck and lumbago may be taken as examples of the acute forms.

In stiff neck, with the needle directed forwards, I begin the injection beneath the fascia covering the posterior triangle, at the junction of the middle and upper thirds of the sternomastoid. At this level the external jugular vein is avoided. The needle is gradually pushed on till it enters the sheath of the sternomastoid, injections being made at short intervals to the amount of 2 c.cm. The pain so caused is momentarily intense, and may radiate over the occiput to the scalp, as well as down to the upper borders of the spinous and acromion processes of the scapula. Sometimes the affected muscle appears to be the trapezius, in which case the needle is directed medially, and injections may be required at two or three levels.

Lumbago almost always requires the injection of two or three sites, on one or both sides according to whether or not the pain is bilateral. The commonest of these sites is beneath the fascia covering the erector spinae at the level of the interval between the third and fourth lumbar spines. A second site usually requiring injection is the fascia occupying the angle between the sacral spines and the posterior part of the iliac crest, 2 to 4 c.cm. being used at each, according to the relief obtained. After this the patient should be able to touch his toes while the knees are extended, or as nearly to accomplish this as would be normal for the individual concerned. This exercise I regard as essential, not only to stretch the fascia while still anaesthetic but to re-establish confidence in the ability to move without pain. In a few cases pain may be felt then, or a day or two later, in the upper and inner quadrant of the buttock. In this site it is especially desirable to limit the depth of the needle to the level suggested above, for muscular branches of the superior gluteal arteries are here both numerous and large.

In other cases a deep-seated pain in the back persists after injection of the posterior lamella of the lumbar fascia. Relief may be obtained by injecting behind—that is, superficial to—the middle lamella. The needle is inserted at the outer border of the erector spinae and directed inwards and forward, depth being gauged by a finger of the left hand placed on the tip of an adjacent transverse process. Sometimes pain radiates to the abdomen, and is usually felt as a deep-seated ache in one or other iliac fossa. For this, injection along the outer border of the erector spinae, with the needle directed laterally, usually gives relief.

Illustrative Cases of Acute Type

A clerk in the Post Office, soon after reporting for duty in the morning, was taken with such severe pain in the back that he was unable to move. On arrival I found him grey in the face, which, with forehead and scalp, was wet with perspiration. The pulse was thready and rapid. The aspect, in fact, was that of an acute abdominal emergency, while the

erect posture proclaimed that the trouble was behind the spine. The injection of 2 c.cm. of novutox into the sheath of the right erector spinae and another 2 c.cm. into the sacro-iliac angle of the same side immediately relieved all spasm and pain. He was, however, still shocked from the intensity of the latter, and I took him home in my car. He resumed work the following morning completely recovered.

The wife of a working-man sent for me on account of pain in the leg. I found her sitting up in bed sobbing with pain and unable to put her foot to the ground. She has been a patient of mine for over twenty years, and I have never known her hysterical or disposed to magnify her ailments. Extension of the ankle provoked great pain in the region of the belly of the tibialis anticus. The point of maximum tenderness was over this muscle, about two inches below the tibial tuberosity. An injection of 4 c.cm. of novutox was introduced beneath the fascia in this region, and resulted in complete relief from pain and immediate restoration of function. Three days later she again sent for me, complaining of pain on movement in the peroneal part of the same leg. This was less severe, but prevented walking. A single injection of 2 c.cm. beneath the fascia in the region indicated abolished the pain, and there was no further recurrence.

Non-traumatic Rheumatism: Chronic Types

The commonest forms of chronic muscular rheumatism are pseudo-sciatica and deltoid rheumatism. The distinction "pseudo-sciatica" is no mere academic quibble of terms. The textbooks refer to "stiff neck" and "lumbago" under the headings "fibrositis" and "myofibrositis," but no niche appears to have been carved out for the equally prevalent muscular rheumatism occurring in the lower limb. The term "sciatica" is rightly restricted to a neuritis affecting the sciatic nerve, and if the local treatments recommended—injections, acupuncture, and stretching of the nerve itself by manipulative or operative measures—be applied to cases of muscular rheumatism the results are likely to be not only fruitless but harmful.

While it is true that the onset of pseudo-sciatica is often confined to a day, its duration under the usual regime is as often a matter of months. The pain is generally described as extending down the whole of the back of the thigh and not infrequently to the calf and ankle, as in true sciatica; but little help can be obtained from the patient in the matter of location. I have found, however, that injections at three sites, given on several occasions at intervals of two or three days, produce the best results. The first site is along the line of the gluteal fold, using from 4 to 6 c.cm. The second site is beneath the fascia covering the popliteal space: here it is advisable to keep to the upper half to avoid the termination of the short saphenous vein. The third site is on the antero-lateral aspect of the leg, about two and a half inches above the external malleolus, in the neighbourhood of emergence of the musculo-cutaneous nerve.

In deltoid rheumatism pain and tenderness are most pronounced at the origin of the muscle from the acromion and outer end of the scapular spine, and at its insertion into the humeral shaft. About 6 c.cm. of local anaesthetic is required at the upper site, while 2 c.cm. is usually enough at the insertion. Occasionally the clavicular origin requires injection, and sometimes the fascia covering the body of the muscle. It is seldom possible, on the first attempt, to locate all the places requiring injection, and it is better not to try to do too much at one time. The pain of deltoid rheumatism often radiates to the elbow and sometimes down the radial side of the forearm as far as the wrist. This radiated pain, however, disappears after treatment in the deltoid region.

Illustrative Cases of Chronic Type

A lady in the sixties, of no occupation, complained of "neuritis" in the right arm. Previous attacks had lasted for two or three months, and then completely disappeared. She did not think that treatment of any kind had benefited her much. There was no sugar in the urine and no apparent focus of infection. Most of the pain was in the deltoid region, but it often extended down the outer aspect of the arm to the elbow and occasionally to the radial side of the wrist and hand. Tenderness was felt at the deltoid origin from the acromion and outer end of the clavicle as well as at the deltoid insertion. There was also tenderness just above the external humeral epicondyle. A definite elongated thickening was present in the substance of the muscle about an inch below the acromion. An injection was made into this without producing much pain or affording any relief to the "neuritis." Four c.cm. was then injected along the acromial origin of the muscle, giving rise to momentary acute pain, which she said went down to her wrist. Two c.cm. was now injected into the tender spot at the deltoid insertion. The "neuritis" was worse next day, and a week later I had difficulty in persuading her to agree to any further injections. On this occasion I again injected the same sites, with the addition of 1 c.cm. in the region of the epicondyle. A great improvement followed this, and a week later the only remaining tenderness was at the clavicular origin and along the anterior border of the deltoid. These sites were injected, after which all pain disappeared and normal function was restored.

A lady aged 40, accustomed to an athletic life—golf and tennis—had suffered from pseudosciatica of gradual onset for twelve months. During the first three months the attacks were intermittent. During the last nine months she had never been free from pain, though it was worse at times. Six months after the onset the teeth had been radiographed: an apical abscess was discovered and the tooth was removed. No improvement having occurred in the next six weeks, she went to an orthopaedic surgeon, who treated her by manipulation; the pain after this was much worse. She then had a course of exercises, radiant heat, and massage. The exercises were very painful, and no improvement followed this treatment. I gave an injection in the line of the gluteal fold and upper half of the popliteal space without affording much relief. In two days the injections were repeated, considerable improvement resulting. Two days later further injections were made in the same sites and, in addition, in the neighbourhood of emergence of the musculo-cutaneous nerve. After this the patient was able to sit with her back to the wall and legs extended without experiencing pain. The last injections were given a week later, and more than four months have now elapsed without recurrence.

Traumatic Type of Rheumatism

Traumatic cases are of long duration. Common examples are "tennis elbow," "painful heel," and "pectoral pain." The history is that of sudden onset during muscular exertion, which, curiously enough, is usually not of a violent nature. "Pectoral pain," for example, generally originates during coughing, and "painful heel" during walking.

The site can be located by the patient by active movement of the affected muscle against resistance, and confirmed by the fact that it is the point of maximum tenderness to finger-tip pressure. A small injection of local anaesthetic in the right spot will effect a cure, whereas a large one in the surrounding neighbourhood will, when the anaesthetic effect has passed off, merely add a bruised feeling to the original pain on movement. Evidence that the right spot has been found is afforded when the pain of the injection reproduces the pain complained of on movement. If this is explained to the patient beforehand helpful co-operation can be obtained. This is fortunate, for experience has taught me that in this type of rheumatism accuracy to within one-eighth of an inch in placing the injection is essential for success.

Illustrative Cases of Traumatic Type

A general labourer was referred to me by a colleague as a "query chronic appendix." He complained of a chronic ache in the right iliac fossa, which, intensified on movement, had

prevented him from working for the past eleven months. My colleague informed me that he had exhausted his medicinal remedies upon the man without success. The patient had also been sent to another hospital, where he had been operated on for bilateral inguinal hernia in the hope of curing the pain. This measure also failed to relieve him. Examination revealed that there was neither tenderness nor increased resistance of the muscles covering the right iliac fossa. Careful questioning disclosed that the pain had arisen while he was employed in "ditching," and that the clay was sticky and often failed to leave the shovel when being thrown up from the ditch. Further examination elicited tenderness above the anterior part of the iliac crest, and finger pressure in this region increased the pain in the right iliac fossa. Injection of the tender region abolished the iliac pain, and the man expressed himself as being completely recovered. Next day, however, he complained of an ache in the right half of the upper abdomen. A tender point was found at the tip of the tenth costal cartilage. This site was injected, when the pain and tenderness immediately disappeared. The man was kept in hospital a further two days for observation and was able to return to work a week later.

Fifteen days after operation for compound comminuted fracture of the patella a plumber, subject to chronic bronchitis, developed intercostal pain which prevented coughing. The temperature began to rise, and by the seventeenth day coarse rales were heard at the base on the painful side. The operation wound having healed by first intention, and neither redness nor tenderness being present in the neighbourhood, I concluded that the pyrexia was due to the pulmonary condition. An injection of 4 c.cm. of novutox into the fascia at the painful site restored the power of painless coughing. Much sputum was expectorated during the next forty-eight hours, during which the temperature gradually fell, reaching normal on the twenty-first day.

Since writing these notes the Editor has drawn my attention to papers bearing on the subject in the *Journal* of February 12, 1938—namely, "Suggestions relating to the Study of Somatic Pain," by Sir Thomas Lewis (p. 321), and "A Preliminary Account of Referred Pains arising from Muscle," by J. H. Kellgren (p. 325).

I am indebted to Dr. Harold Gardiner-Hill, F.R.C.P., for kindly criticism and advice.

CHRONIC BLEPHARITIS IN CHILDREN

ITS TREATMENT WITH ANILINE DYE COMPOUND

BY

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The primary object of this investigation was to effect a comparison between the treatment of chronic blepharitis in school children with the use of ung. hyd. ox. flav. in a certain group and an aniline dye compound in another group. It was found, however, that in a large proportion of the cases "golden eye ointment" had previously been tried at one time or another, and this fact, coupled with the difficulty experienced in inducing the patients receiving this form of treatment to attend the clinic as regularly as was necessary, led me to adopt the "blue compound" (aniline dye) treatment in all cases and to study its effects. This study was extended to cover the association with blepharitis of seborrhoea, visual defects, and subnormal nutrition.

The children treated were not merely those found at routine medical inspection, but comprised all the known cases of chronic blepharitis in the Lancashire County district of which I was medical officer of health at the time. There were sixty-eight cases in a total school population of 7,317, giving an incidence rate of approximately 1 per cent.; forty-four of these attended the clinic during the treatment period of eight weeks.

References to brilliant-green treatment of blepharitis are meagre (Tulipan, 1936; Krylov and Rostovtsev, 1934), and therefore the present study may be of interest. Tulipan stated that

> "a 1 per cent. aqueous solution of brilliant green painted on the eyelids daily for several weeks has proved efficacious in the treatment of a few patients with blepharitis associated with sycosis vulgaris."

Aetiology and Pathology

Chronic blepharitis is commonly regarded as a non-infective disease of the eyelashes, the causal organism being a staphylococcus (Barber, 1934). Gurd (1939) and Abu-Saif (1934) mention two types: a squamous and an ulcerative. While Gurd associates the occurrence of seborrhoea and dandruff with the squamous variety, Dowling (1937) says that Sabouraud draws a sharp line of distinction between seborrhoea and dandruff in relation to blepharitis. Dowling therefore speaks of seborrhoeic blepharitis (Greenbaum, 1934) and a second severe type, or sycosis of the eyelashes. Barber (1934) refers to adolescent seborrhoea and a severe type in childhood. Clark (1937) draws a distinction between seborrhoeic blepharo-conjunctivitis occurring in adolescent or adult life, and blepharitis marginalis, a mild disease "occurring in poorly nourished children." His adolescent type is "almost always associated with seborrhoeic dermatitis of some other part of the body, usually of the scalp, which is characterized by dandruff or alopecia, or both."

In the present cases, all of them school children under 14 years of age, no such type was found, but the cases fell naturally into two groups:

(*a*) A mild type, characterized by flaky incrustations on the lid margins, slight swelling of the lids, but no ulceration, which I shall call the squamous type; and

(*b*) A severe form, characterized by small ulcers at the roots of the eyelashes, swollen and discoloured lid margins, destruction of lashes, and occasional conjunctivitis, which I shall refer to as the ulcerative type.

I was unable, although all cases were examined for it, to prove any preponderance of either dandruff or seborrhoea of the scalp in either category. Dandruff was no more prevalent than in any group of children selected at random.

Again, it is mentioned by various writers that blepharitis is a disease of badly nourished children. Almost all of my cases could be classified under the modern nutritional Standard B—that is, within the limits of normality (1 Standard A and 3 Standard C). Therefore in no case was cod-liver oil and malt given as part of the cure. All cases were examined by Dr. McCann, consulting ophthalmologist to the Lancashire County Council, but in only two were visual defects found. These were corrected; but I feel, like Gurd (1939), that "errors of refraction should be corrected, but this alone will not alleviate the condition." Somerset (1939), in criticizing the report of the Committee of Inquiry into Problems connected with Defective Vision in School Children (some 2,625 cases), gives a very exhaustive review of 300 cases at White Oak Hospital, London, and arrives at the conclusion that "there is no significant difference in the spherical refractive error in children suffering from blepharitis in comparison with the normal child," and that "causes other than errors of refraction must be sought for in blepharitis of children."

Finally, in order to prove the value of early treatment I endeavoured to show that the milder type of blepharitis could pass into the ulcerative or severe form, but honesty

compels me to admit that the two categories were quite sharply defined and that the results of treatment were different in the two types.

Method of Treatment

The preparation used on all cases was a paste consisting of:

Gentian violet	½ %
Brilliant green	½ %
Adeps lanae	ad 100

The paste, which is of a dark purple hue, is applied by means of a soft camel-hair brush to the roots of the eyelashes, after the crusts have been removed with boric lotion. Care is taken not to allow any paste to get into the conjunctival sac, but even if a trifle does so no harm results, so that the paste can safely be applied by the child's parent, who usually errs on the side of safety. The paste colours the skin temporarily, but is easily washed off. The children are intrigued by the general "unaesthetic" effect and show quite a keenness to carry out treatment for the first week or two, hence the value of early success.

The "blue compound," as we named it, is applied twice daily, morning and evening, and therefore children need not remain away from school; but the results are better if they do so for the first week at any rate, as a few showed a certain sensitiveness to the blue coloration being seen by others. After a week or so, however, they ceased to worry about this. (Smoked glasses could be worn if need be.) In the case of the ulcerative type, after the first period of treatment had proved fruitless the ulcers were cleaned first with hydrogen peroxide and the dye was applied in a watery solution (guttae pyoktanin, 5 grains to 1 fl. oz.). I am indebted to Dr. McCann for permission to use the latter method, which he has employed for some time.

The children reported to the clinic once a week for two months or until clear of disease; they were then allowed to go free of treatment for nine months and were subsequently reviewed.

Results

Of the forty-four cases treated thirty-seven were mild or squamous and seven severe or ulcerative. All the squamous cases were free of symptoms after eight weeks, but the ulcerative cases showed little or no improvement.

Table showing Rate of Cure of the Squamous Type Week by Week

Weeks:	1st	2nd	3rd	4th	5th	6th	7th	8th
No. of cases cured ..	5	8	8	6	2	1	3	4
	35%		38%		27% approx.			
	73% approx.							

The practical importance of the above figures lies in the fact that if an early successful issue was not obtained the child and parent became tired and treatment thereafter tended to be somewhat spasmodic.

Ulcerative Type.—Of the seven patients under this heading five proved to be very bad attenders and would not do as requested. They had relapsed on many occasions under "golden eye ointment," and the blue compound, while it proved useful in mitigating the disease, did not show the striking success which it did with the milder type of case. Of the two remaining ulcerative patients one certainly showed a marked improvement by the end of a month, and thereafter failed to attend, while the last was induced to attend daily for treatment with hydrogen peroxide and gentian violet solution. The latter patient was discharged free of ulcers after two weeks of daily treatment.

The lack of response of the ulcerative type of case to weekly supervision and the response of the one good attender to daily treatment show that a more intensive method is required. The blue compound will clear the eyelashes, but only under what approximate to hospital conditions, with the case under constant supervision. Indeed, the fact that so many intensive methods have been applied by others—namely, 2 per cent. silver nitrate (Gurd); potassium nitrate, copper sulphate, etc. (Sabouraud, 1934); adrenaline chloride and resorcin (Clark); *x* rays (Greenbaum)—points to the need for hospitalization of the ulcerative type. I wish to put forward a strong plea that patients with this type of chronic blepharitis should not be treated at clinics or under haphazard conditions of attendance as out-patients anywhere. It is therefore important for medical officers to recognize the differing clinical types early on and to treat accordingly.

Abu-Saif, in utilizing *x* rays, has invented special forceps fitted with shields for protection of the eyes against the rays. He states that "improvement begins to take place one week after the last sitting. . . . Epilation begins about the end of the second week and is complete by the twenty-first day."

The obstinacy and resistance to treatment of the ulcerative type are clearly recognized by all writers, no matter what line of treatment is adopted. There is no need to hospitalize all blepharitis patients, as the results of treatment of the present cases show. Hence the need for differentiation of the two types by the medical attendants.

Subsequent Review of Cases

The investigation was closed after two months and the patients were allowed to attend school as normally for the next eight or nine months. Then a review of those treated early was made, with the following results:

Thirty-five cases out of the total of forty-four treated reported for review (twenty-nine squamous, six ulcerative).

Squamous Type.—The number of squamous cases reviewed was twenty-nine. Twenty-six of these were found still free of disease, and three (10 per cent.) had relapsed.

Ulcerative Type.—Of this group one case was free of disease after a second intensive course and five cases still showed symptoms. Only one patient had been induced to undergo daily treatment at the clinic.

Note on Relapsed Cases.—It was noted that the three relapses of the squamous variety did not occur in cases which had cleared up in the first week or two of treatment—showing that if treatment is allowed to become spasmodic and long-drawn-out its effectiveness is lost.

Summary and Conclusions

1. A review has been made of some forty-four cases of chronic blepharitis existing in a school population of 7,317 and of the results of treatment with an aniline dye compound.

2. The cases were found to be classifiable into two groups: (*a*) a mild type—the squamous variety; (*b*) a severe type—the ulcerative variety.

3. Aniline dye compound is an effective method of treatment in blepharitis squamosa, but is effective in blepharitis ulcerosa only under in-patient hospital conditions.

4. It is suggested that the latter category should be treated in hospital and on no account at a school clinic.

5. In view of the latter remark, it is considered important for medical officers to recognize the line of distinction between the two types and to treat accordingly.

6. I have used the aniline dye compound mentioned as "blue compound" for at least four years and have never seen any complications, such as inflammation of the

conjunctivae, result from its repeated use. It may be regarded as a safe method of treatment.

7. No definite correlation between squamous or ulcerative blepharitis and seborrhoea was established.

8. No definite correlation was found between blepharitis and the nutritional standard, and cures were obtained without the use of cod-liver oil and malt. It is important to note, however, that only one case fell into the nutritional category A, and one must also bear in mind the reported excellent results of experimental health meals (Board of Education, 1938).

9. No definite correlation was observed between blepharitis and visual defects.

10. The mild type of the disease was never found to change into the severe type; cases appeared to fall into two quite clearly defined groups.

11. The existence of blepharitis in 1 per cent. of a school population and the great interference with education caused by it demand that some consideration be given to the disease, and particularly to the ulcerative variety.

I wish to express my thanks to Miss F. E. Ellerington for her assistance in the compilation of case reports, to Dr. McCann for permission to quote his method, and to Dr. F. Hall, county medical officer of health, Lancashire, for permission to publish this paper.

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CHRONIC ACETANILIDE POISONING

BY

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Sulphaemoglobinaemia as a cause of cyanosis has been recognized for many years and has recently been given prominence on account of the frequency with which it appears in association with sulphonamide therapy. That it may also be produced by antipyretics of the aniline group is not so well known. Snapper (1925) drew attention to the occurrence of cyanosis from sulphaemoglobinaemia following the continued use of aniline antipyretics, and since then several cases demonstrating this toxic effect have been reported. In a paper by Lundsteen, Meulengracht, and Rischel (1938) eleven cases of cyanosis following the administration of acetanilide are described. In one of these cases the authors have demonstrated a coloured derivative of aniline in the blood, and believe that this pigment is largely responsible for the cyanotic appearance of the patient and for the dark colour of the drawn blood, which persists in spite of exposure to the air. It has been recognized for some time that a condition of addiction to the use of acetanilide may develop, and that in individuals who have become thus addicted chronic cyanosis is prone to develop.

The following case illustrates several features which are of interest in view of Lundsteen's findings.

Case Report

A housewife aged 55 was admitted to the Aberdeen Royal Infirmary on account of unexplained cyanosis. Ten days before admission she noticed that her lips were blue; this blueness increased in intensity and her hands became "slate-coloured." The cyanosis was not associated with any other symptom, but she consulted her doctor about it, and he advised her to attend hospital. It transpired that since girlhood the patient had suffered from frequent attacks of right-sided frontal headache, often associated with a sensation of flashing in front of the eyes and followed by vomiting of bile-stained material, which relieved the headaches. In recent years these attacks had become more frequent, and a year ago she consulted a chemist, who gave her powders consisting of acetanilide and phenazone, four grains of each, and caffeine, two grains. These powders relieved the headache and gave her a feeling of well-being, and for the past year she had been taking "about three powders a day." She admitted that the powders "grew on her," and said that when she felt depressed she took a powder, which made her feel better and "things were more cheerful." Shortly before the onset of the cyanosis she had taken considerably more than three powders daily. Her previous history was that, apart from headaches, she had no illnesses. Menstruation had stopped two years previously, and she had since suffered from occasional attacks of flushing.

On examination the patient was seen to be a well-nourished rather stout woman, deeply cyanosed. Her skin was a striking slaty-grey colour, and the cyanosis was especially marked in the lips and mucous membranes. She was afebrile —temperature 98.4°; the pulse rate was 84 and the respirations 20. The pulse was regular, of regular tension, and the arterial wall was soft. The blood pressure was 168/96. The heart was not enlarged and sounds were pure; no murmurs could be detected and there was no evidence of congenital or valvular heart disease. The chest moved equally on both sides; no abnormality of the respiratory sounds or other abnormal physical sign was detected; in particular, no evidence of mediastinal neoplasm was found. The tongue was blue in colour and furred. The throat, apart from the dark colour, was healthy. The abdomen was lax; no tenderness was detected on palpation. No palpable mass was found. The liver and spleen were not enlarged. The pupils were equal, and reacted to light and accommodation. There was no abnormality in the function of the cranial nerves, no loss of power in the limbs, and no sensory impairment. All the tendon reflexes were active and equal. Abdominal and plantar reflexes were normal in type. On examination the fundus of the eye was healthy. Radiological examination of the chest showed no abnormality of heart or lungs.

Laboratory Findings.—The venous blood was dark and remained chocolate-coloured in spite of shaking in a wide-mouthed flask with free access to the air. On spectroscopic examination it revealed the presence of an absorption band at the red end of the spectrum occupying the position

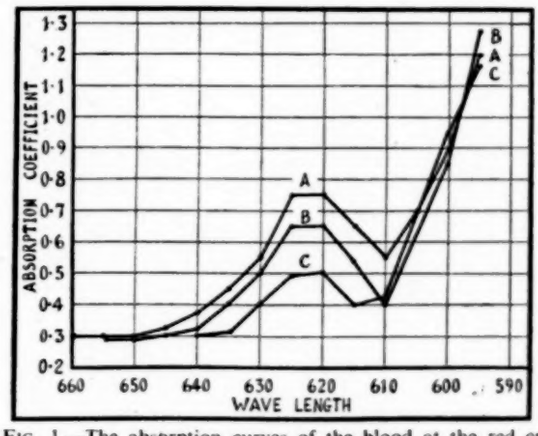

FIG. 1.—The absorption curves of the blood at the red end of the spectrum: A, on admission; B, after two weeks; C, after four weeks.

615–630 λ. The absorption band did not diminish in density after the addition of ammonia or potassium cyanide. It must therefore be concluded that the pigment responsible for the cyanosis was sulphaemoglobin. There was no anaemia and the leucocytes were normal. Blood examination gave the following result: red cells, 5,100,000 per c.mm.; haemoglobin, 90 per cent.; white cells, 7,400 per c.mm.—polymorphs 58 per cent., lymphocytes 30 per cent., eosinophils 4 per cent., basophils 1 per cent., monocytes 7 per cent. Blood urea was 34 mg. per 100 c.cm., and there was no pathological alteration in the constituents of the urine. The patient remained in hospital for six weeks, and during that time the cyanosis gradually diminished in intensity, as did the density of the abnormal absorption band. Fig. 1 depicts graphically the absorption spectrum of the blood in the red, and shows during the period of hospitalization the diminution in the density of the absorption band associated with lessening of cyanosis. (These graphs are from figures obtained by examining samples of blood of constant dilution with a large-model constant-deviation spectrometer and a Nutting photometer, using the method described by Marshal in his thesis of the University of Aberdeen.)

On discharge the patient was still slightly cyanosed and sulphaemoglobinaemia could still be detected in the blood. The withdrawal of the analgesic powders was not associated with any difficulty or discomfort to the patient. There were no unpleasant subjective effects and no apparent craving.

Comment

The above case is of interest from several points of view. The cyanosis could be entirely explained by the existence of sulphaemoglobinaemia, and it is unnecessary to assume the existence of a coloured derivative of aniline. In the eleven cases described by Meulengracht methaemoglobinaemia was found in one, but spectroscopic data are not given for the others, nor are the details of the spectroscopic analysis described. From the work of Gley (1937) and Campbell and Morgan (1939) the mechanism of formation of sulphaemoglobin from aniline derivatives has now been in some measure explained. It is known that aniline derivatives are oxidized to phenyl-hydroxylamine and *p*-aminophenol in the blood stream, and that both these substances, when added to blood *in vitro*, alter haemoglobin to methaemoglobin; if, however, a trace of hydrogen sulphide is present in the blood the addition of phenyl-hydroxylamine or *p*-aminophenol rapidly forms sulphaemoglobin.

By measuring the absorption of light by a sample of laked blood at 620 λ and 630 λ at given intervals after the addition of suitable reagents it is possible to represent graphically the velocity of alteration in the haemoglobin to sulphaemoglobin or methaemoglobin. Fig. 2 shows the velocity of the formation of methaemoglobin and sulphaemoglobin when *p*-aminophenol is added to laked blood alone and to laked blood containing a trace of sulphide. It will be seen that when sulphide is present in the blood the addition of *p*-aminophenol causes rapid conversion of haemoglobin to sulphaemoglobin. In view of this clear-cut property of phenyl-hydroxylamine and *p*-aminophenol (one or both of which are formed from acetanilide in the blood stream) it seems unnecessary to assume the existence of any insoluble coloured derivative of aniline as a cause of the cyanosis unless the presence of such a compound in the blood can be proved beyond doubt.

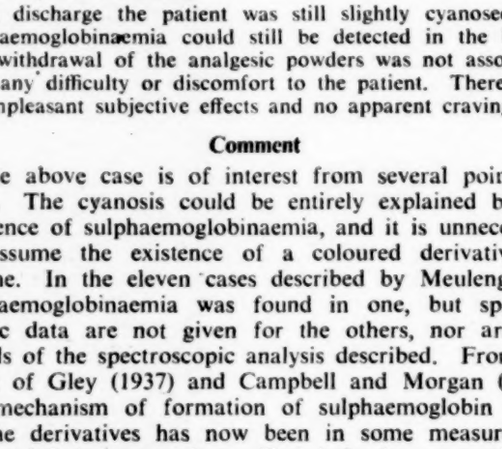

FIG. 2.—A: Rate of change of absorption coefficient at 620 λ of a solution of haemoglobin after addition of a weak solution of hydrogen sulphide and *p*-aminophenol. B: Rate of change of absorption coefficient at 620 λ of the same solution of haemoglobin after addition of hydrogen sulphide solution alone. C: Rate of change of absorption coefficient at 630 λ of the solution of haemoglobin after addition of *p*-aminophenol alone.

The tendency to addiction to acetanilide has been emphasized by Lundsteen *et al.* (1938), but since in this case no difficulty was experienced in withdrawing the drug it seems advisable to use the term "habit" rather than "addiction." The genesis of the habit can be readily understood from the fact that the powders were taken for the relief of recurrent headaches, so that a measure of confidence in the remedy, once established, would lead to its repeated use. This tendency was doubtless contributed to by the fact that the powders contained caffeine, a substance which, apart from its effect on headache, has a well-marked stimulant action on the higher centres, and might readily account for the feeling of exhilaration experienced by the patient.

Summary

A case of cyanosis the result of acetanilide poisoning is recorded.

The mechanism of formation of sulphaemoglobin from aniline derivatives is discussed.

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TENDER TEETH: THEIR SURGICAL IMPORTANCE

BY

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AND

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The sharp striking pain of toothache is so familiar that it is often used to describe other pains. A dental surgeon is visited and the tooth is usually extracted, which is the end. On the other hand, the tooth which is tender on chewing, clenching the jaws, and percussion, and to hot and cold water, is frequently endured by the patient as the discomfort is so mild, yet just such a tooth may result in serious trouble. It is important to realize that the tenderness may be transitory, being present for only one or two days at a time, reappearing weeks, months, or even years later. The following are some of the more important causes of tender teeth.

Surgical Causes

Cold in the Teeth.—This common condition of acute non-suppurating inflammation of the gum is of unknown origin, and rapidly subsides without treatment. The fact that all the teeth are affected clinches the diagnosis.

Pregnancy and Lactation.—In these conditions the teeth often become tender and carious. The cause is undoubtedly the drain of calcium by the foetus and milk respectively acting on the cementum and teeth, just as Maxwell has conclusively shown is the case with osteomalacia where this occurs in endemic form in Northern China. The remedy would appear to be the administration of vitamin D.

Dead Tooth.—As stated above, the commonest fate of an aching tooth is, or should be, extraction; but a certain number of teeth that have ached settle down, take on a bluish colour, and occasion little pain apart from transitory tenderness. Such a tooth may prove to be a serious menace to health. The following case is an example:

Originally reported as a case for diagnosis (Bertwistle, 1926), it was subsequently proved to be one of subcutaneous erysipelas and published under the title "Elephantiasis" (Bertwistle and Gregg, 1928), of which disease it was the precursor. One year later a crowned tooth became tender; in spite of negative *x*-ray findings it was extracted, and on it was found a granuloma, which could not have been demonstrated by radiographs. No further attacks ensued until 1938, when a mild manifestation appeared, this time in the right foot and leg. Three months later another more severe attack developed on this side. Dusky patches of erythema appeared on the dorsum of the foot and over the tibia, accompanied by inguinal adenitis. The administration of prontosil undoubtedly cut the attack short. Just before the first attack a heavily filled molar tooth had become tender. Its pulp was removed and the pulp chamber filled: *x*-ray findings were again negative. After the second attack the tooth was extracted; its roots proved to be stinking. No further attacks have occurred since.

It is probable that the good results following wholesale extractions could have been just as well obtained by the removal of one or more dead or dying teeth. Conversely, the failure of a condition to clear up on the extraction of an offending tooth does not prove it was not the cause; the mischief has already been done.

Affection of the Antrum.—While it is true that antral disease is often caused by infected bicuspid teeth, it is also true that inflammatory states of the antrum occasion pain and tenderness of the teeth. A negative pressure in the antrum is productive of pain on pressure on the teeth. Carcinoma of the antrum, the commonest malignant disease of this structure, results in the teeth, usually the bicuspids, becoming tender and loose; they may even be extracted before the true nature of the condition is appreciated. Straight radiography, or after the injection of lipiodol (antrograms), is invaluable.

Sarcoma of the Alveolus.—Sarcoma reveals itself in swelling of the area, looseness of the teeth, and tenderness, as exemplified by the following case:

A man aged 40 complained of a loose tooth which was tender, and of swelling of the jaw about a lower molar tooth for a period of some weeks. Examination revealed a loose tooth surrounded by a boggy swelling affecting the alveolus only and simulating a chronic abscess; the other seven teeth were carious. Extraction disclosed a large fleshy mass spreading along the alveolus that bled readily. Pain and secondary deposits were absent. (H. T. R.-H.)

Tumours of the Palate.—Anderson in an analysis of fifty cases found that only two were dental in origin, although the first symptoms were often dental.

Fractures of the Jaw.—In the absence of malalignment, fractures of the jaw may present a problem, of which the following is an example:

A man aged 24 asked to have a tender tooth extracted. There was inflammation and the tooth was very loose. Over the angle of the jaw was a swelling suggestive of fracture, which was confirmed by radiographs. The patient then confessed to having been mixed up in a brawl a fortnight previously, when he had sustained a heavy blow on the jaw and thought he had merely loosened a tooth. (H. T. R.-H.)

Osteomyelitis and Necrosis of the Jaws.—This condition, which is not so well known as it ought to be, should be borne in mind when a child has what looks like an alveolar abscess and a carious tooth. Removal of such a tooth during the acute phase may lead to tragic results, even death. Hankey states that there is very little discomfort before operation. Brown and Tong quote 234 cases, forty-eight being in the maxilla: they consider dental trauma to be the deciding factor. If operated upon during the acute phase acute cellulitis is prone to develop. The correct treatment is drainage, several months being allowed for the sequestrum to separate. In children it is important to preserve the teeth and teeth buds because, though involved in the diseased area, they may yet retain their vitality and become sound again. Woodward considers the condition a distinct problem for the oral surgeon since, though the principles may be the same for osteomyelitis elsewhere, radical treatment is often fraught with very serious results. Holman and Waters have each been successful with uleron, a substance allied to prontosil. The fact that the whole of the body of the bone may be involved calls for extreme caution if disfigurement is to be avoided; patience is imperative. During the pyrexial stage rest in bed, free bowel action, and light diet are indicated. In the acute stage extraction of teeth is contraindicated, as this may spread the infection. Incision and drainage are necessary when pus is localizing. In the case of the mandible an external incision, just below and parallel to the lower and inner border, should be made and a tube inserted; irrigation with eusol is beneficial. The drainage tube should not make contact with the bone, since this occasions great pain. Should the bone require opening, the lower border of the mandible should be preserved. Surgical intervention ought to be minimal, and when a sequestrum has formed time should be allowed for new bone to develop before removing it.

Cellulitis of Neck.—A case of cellulitis of the neck secondary to a microscopic abscess of a vital tooth has been reported by one of us (Roper-Hall, 1939). Jones has reported a similar instance.

Trigeminal Neuralgia.—According to Rollinson Whitaker (quoted by Colyer and Sprawson, 1938) 90 per cent. of these cases originate in the mouth and are due to a continuous stream of small irritations which eventually lead to inflammatory changes in the Gasserian ganglion. The detection of such foci may be very difficult, since a live tooth may yet be the seat of periodontitis.

Medical Conditions

Besides these surgical causes there are many medical conditions leading to tenderness. The effect of scurvy on the teeth is well known. Certain blood states, such as the anaemias, have been dealt with by Neal. The association of leukaemia has been studied by Love. Syphilis, malaria, diabetes, and tuberculosis have their effects on the teeth. Hysteria, migraine, and other neuroses are often accentuated by tender teeth. Many of the acute fevers, and the recovery therefrom, may cause tenderness.

Mechanical Causes

Certain dental operations, of which a filling that is too high is the most obvious; a large metal filling, causing the tooth to be sensitive to heat and cold; injury to the teeth either by a single sharp blow or a series of small traumata; tooth-brush bristles; fish-bones lodged in a cavity or between teeth; the grinding of teeth at night; and the occupational abrasions of cobblers, seamstresses, and players of wind instruments—all these may result in tenderness.

Conclusion

Tenderness of teeth, while often of purely dental origin and interest, may nevertheless be of use in the diagnosis and treatment of more serious surgical and medical conditions.

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The latest issue of the *Index to the Literature of Food Investigation* (vol. xi, No. 4, March, 1940), published on behalf of the Department of Scientific and Industrial Research, is now available from H.M. Stationery Office, price 4s. 6d. It deals with papers received between October 1 and December 31, 1939.

Clinical Memoranda

Circumcision: A Modified Technique

So far as I can ascertain the only method described by which the surgeon can be sure how much foreskin he should remove is the one commonly practised in adults, where the dorsal aspect of the foreskin is divided as far back as the corona. This, however, is not the procedure usually practised in children. In the latter the foreskin is simply pulled over the glans to the required position and then cut off, and although there are many different methods of doing this the surgeon has to rely entirely upon his own judgment in estimating the amount to be resected. If inexperienced, therefore, he may easily remove either too much or too little foreskin.

It is the purpose of this note to describe a method, applicable both to adults and to children, which will enable the foreskin to be resected neatly and precisely and which it is hoped will be found useful by experienced as well as by inexperienced surgeons.

DETAILS OF PROCEDURE

The penis and scrotum are cleaned with spirit and allowed to dry. The tip of the foreskin is then taken between the index finger and thumb of the left hand, and the penis elevated without tension. The corona of the glans may now be seen as a circular prominence under the penile skin. This is especially well marked in adults. If the corona is not visible, as is often the case in small children with retractile organs, it can be palpated quite easily by gently grasping the glans between the forefinger and thumb of the left hand and milking it backwards and forwards once or twice.

The corona, having been accurately defined, is now marked out on the penile skin with Bonney's blue paint, using a sterilized pen nib for this purpose. It will be seen that the blue line so produced is circular on the dorsal aspect of the penis, but is shaped like an inverted "V" on its under surface, following as it does the converging lips of the corona glandis.

The rest of the operation can now be carried out according to whichever method the surgeon prefers; the important point being that he now knows *exactly* how much foreskin to remove.

It only remains to stress a few further points that arise whichever technique is used for the actual operation. First, the clamp (whether sinus forceps or circumcision shield, etc.) should be applied accurately along the line already marked out with the Bonney's blue paint, making quite sure that the glans penis is safely out of the way on the proximal side of the clamp. The foreskin may now be cut off on the distal side of the clamp without fear of causing injury to the glans. If this is done it will be found that the penile skin will, when the clamp is removed, retract accurately and neatly to just behind the corona. The mucosa is then dealt with in the usual manner. It may sometimes be necessary to ligate a few bleeding points with catgut, but suturing of the skin to mucous membrane is rarely necessary in children, since the apposition of the skin to the mucosa will in most cases be found to be very accurate, and can easily be maintained by the dressing.

The same technique may be applied in the case of adults, and here even more so than in children the advantage of this simple modification will at once be apparent. There is no scalloping of the skin edge, which is commonly seen when the operation is performed by the dorsal slit method. Indeed, were it not that post-operative erection occurs frequently in adults suturing of the skin to mucosa could be entirely dispensed with and a very neat result obtained. As it is, a number of interrupted catgut sutures are introduced to keep the skin and mucosa together.

DRESSING

I have found that vaseline containing 25 per cent. of cod-liver oil is ideal for this purpose, since the presence of the cod-liver oil makes the ointment soft and thus easier to apply on ribbon gauze. Furthermore, the dressing can be removed easily and painlessly. As regards the application of the dressing in adult cases, I would like here to draw attention to the following technique mentioned by W. W. Walker.[1] The ends of the sutures holding the skin to the mucous membrane are left long, and when the ribbon gauze dressing has been applied they are tied together over it, thus keeping it in position. These sutures are cut short when the dressing is renewed—usually three or four days after operation—when the wound, as a general rule, will be found to have healed perfectly.

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REFERENCE

[1] Walker, W. W. (1929). *Amer. J. Surg.*, **7**, 103.

Occlusion of Ureter from Congenital Single Kidney by Colon Carcinoma

Spontaneous anuria in a subject who up to the onset has been well always gives rise to anxious consideration. The following case seems worthy of being placed on record, for although there are a few people who have only one functioning kidney it must be relatively rare for this organ to be put out of action by carcinomatous invasion of its ureter, especially when the carcinoma is of the annular intestinal type. The diagnosis was not made until one of us (S. M.) made a post-mortem examination.

CASE HISTORY

A married woman aged 72 was admitted to hospital suffering from anuria of four days' standing. Her medical history revealed that two months previously she had had an attack of abdominal pain, nausea, and intermittent vomiting. With rest in bed and suitable diet the condition had cleared. A few days before the onset of anuria there was stoppage of the bowel for two or three days, with a return of vomiting.

Physical Examination.—The patient was thin and of poor colour. Her eyes were sunken and surrounded by dark rings. The lips were pale and the tongue dry but clean. The abdomen was tympanitic and tender in the right lower quadrant. In this region a large mass could be felt. There was no history or sign of previous operation. The respiratory and nervous systems were normal. The heart was slightly enlarged both outwards and downwards, whilst a systolic bruit could be heard over the apex. A few extrasystoles were present. Blood examination showed the urea content to be 183 mg. per 100 c.cm. On catheterization the bladder was found to be empty. Anuria continued, and the patient died on the eleventh day after onset. On the day before death the blood urea content had risen to 260 mg. per 100 c.cm. During the patient's stay in hospital there had been two small evacuations of the bowel.

Necropsy.—Nutrition fair. Oedema of both ankles; some free fluid in abdomen. Left kidney absent, but left suprarenal present and of normal size. Right kidney about twice normal size and showed acute necrosis, with dilatation of the pelvis. Right ureter throughout its length was dilated, the dilatation ending in a stricture near the bladder. At this site there was an annular carcinoma of the colon involving the right ureter and producing complete occlusion.

Cause of Death.—Anuria due to blockage of right ureter by carcinomatous invasion from a primary carcinoma of the pelvic colon, there being only one kidney.

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Dr. Logan Clendening, associate professor of medicine at Kansas University, has presented his excellent library of books on medical history and a large collection of objects pertaining to it to the department of medical history of the University of Kansas, where it will be placed in the Hixon laboratory.

Reviews

ARMY MEDICAL ORGANIZATION

Organization, Strategy, and Tactics of the Army Medical Services in War. By Lieut.-Colonel T. B. Nicholls, M.B., Ch.B. With chapters by Air Commodore A. S. Glynn, M.B., Ch.B., Colonel A. R. Laurie, M.B., Ch.B., and Colonel F. G. Lescher, M.D., M.R.C.P. Second edition. (15s.) London: Baillière, Tindall and Cox. 1940.

The second edition of this book contains just over 500 pages, an increase of about 100 pages, due to the inclusion of chapters on the organization of hospitals in the Emergency Medical Service, on air medical transport, and on the anti-aircraft medical services; and the author, Lieut.-Colonel T. B. Nicholls, has written a long preface.

In these days a large number of medical officers are undertaking for the first time duties as commanding officer; a larger number are engaged in learning the rudiments of their new military profession. Those who have studied medical arrangements in the light of modern tactics and have undergone practical experience of a warfare of rapid movement, ruthless attack, and frequent air raids, with dive bombing and machine-gunning, have found that practically everything learned from experience in the last war has to be forgotten. An almost entirely new scheme has to be made, general policy has to be altered, fresh details must be worked out, and no set and stereotyped plan can be relied on. Although it may be useful in certain circumstances to follow standard ideas and scheduled plans the keynotes of successful organization to-day are fluidity, elasticity, and rapid improvisation. It is one of the misfortunes of wartime that few suggestions and hints of an up-to-date and practical nature can be published now, owing to the risk of giving away useful information to the enemy.

Neither of the words "Inspection" and "Reconnaissance" appears in the index to the volume under review. The organizing officer, whether commanding a unit or administering a higher medical formation, must be up and about, day and night during active operations, seeing everything for himself, helping out in difficulties, arriving at instant decisions, and taking appropriate action. "Liaison," too, is missing from the index, though the practical importance of that is well recognized in these days of mobility. "Camouflage" is an important subject, not indexed, and "Protection" is just touched on in the E.M.S. chapters. "Conferences" would form the heading of a useful paragraph. These are a few of the subjects a knowledge of which is essential at the present time. In making medical arrangements in mobile warfare, intercommunication and control are vital: a chapter could well have been devoted to this subject alone, including details of message writing. The subject of operation orders is well dealt with. But, in war, medical departments of the staff should never issue operation orders. A very brief "medical para" for inclusion in administrative instructions is all that is necessary in higher formations, and in units such as field ambulances or casualty clearing stations simple "instructions" or "medical arrangements" are quite sufficient. The less paper used the better. With regard to the new chapter on medical air transport no mention is made there of the contraindications for carrying surgical cases or of the British Red Cross Society's air ambulance organization which was started in 1931. The chapter on anti-aircraft medical services is delightfully brief and that on the E.M.S. very full and well written.

Medical military organization is a fascinating subject which cannot be learned from a book. In the field a small pocket-book, compiled by the officer himself, is invaluable. To attempt to carry round a large volume for reference is like the case of the inexperienced surgeon who has to read up each operation before performing it. The book under review is eminently an academic production. It is fortunate that many blank pages are added for further notes, amendments, and corrections.

VIRUS DISEASES OF MAN

Virus Diseases of Man. By C. E. van Rooyen, M.D., and A. J. Rhodes, M.B., Ch.B., M.R.C.P.Ed., with an Introduction by T. J. Mackie. Oxford Medical Publications. (Pp. 932; illustrated. 63s. net.) London: Oxford University Press. 1940.

Of recent additions to virus literature this textbook on virus diseases of man is one of the most important; in fact, if one excludes Vol. VII of *A System of Bacteriology*, which by now is out of date, it is the only treatise of its kind in the English language. And when one considers the number of virus infections to which man is now known to be subject, and the large volume of original work done in this field of human pathology, one is surprised that two workers, however well informed and enthusiastic, should have contemplated writing a textbook unaided. Latterly it has become the practice in the production of a book such as this to enrol a number of contributors each of whom writes from first-hand knowledge; it is a practice that has much to commend it. We would hasten to say, however, that this is not meant in any way as a criticism of the book under review; rather is it a tribute to the authors, who have maintained throughout such a uniformly high standard.

The first ten chapters are given over to the technical side of virus work—the microscopy of viruses, staining methods, filtration and ultra-filtration, the use of the centrifuge in the study of viruses, the demonstration of inclusion bodies, serological reactions in virus work, and the methods available for the cultivation of viruses. Throughout this section the information is presented in a clear and concise manner. The text is helped out by a number of illustrations—line drawings, photographs, and photomicrographs—and the chapter on inclusion bodies is embellished by four coloured plates, the work of the authors themselves, which are at once artistic and faithful reproductions of the subjects portrayed. In the remaining thirty-seven chapters the various virus infections to which man is susceptible are described. These descriptions follow a more or less set plan. After a brief introductory account of the disease, its clinical manifestations are outlined and discussed. Then in turn the epidemiology and pathology of the condition are considered, an account of the results of transmission experiments is given, and the known facts concerning the causal virus are described. The account ends with a description of the immunity reactions and the laboratory diagnosis of the disease. Each chapter is completed by an extensive list of references.

It is obviously impossible in the course of a brief review adequately to criticize each of these chapters. Suffice it to say that the known facts seem all to be there and, what is more, presented with due regard to their relative value. The authors seem to have read widely and critically, and wherever they are dealing with some controversial question, such as the aetiology of trachoma or the mechanism of immunity in poliomyelitis, the matter is presented in an unbiased manner. This book is, in our opinion, a real addition to virus literature which will be of use to the student of medicine, the laboratory worker, and the clinician. It is quite well produced, though the paper on which it is printed has rather a dingy look; there is an adequate index.

BOOKLETS ON TREATMENT

Le Guide Thérapeutique de Médecin Praticien. Tome I. *Les Infections et les Intoxications Endogènes et Exogènes.* By Jean Trabaud and J.-R. Trabaud. (Pp. 280. 55 francs.) Tome II. *Les Maladies de l'Appareil Respiratoire.* (Pp. 208. 43 francs.) Tome III. *Les Maladies du Tube Digestif et de ses Annexes.* (Pp. 236. 48 francs.) Tome IV. *Les Maladies des Appareils Cardio-vasculaire et Urinaire. Les Maladies du Sang.* (Pp. 276. No price given.) Tome V. *Les Maladies Nerveuses et Mentales.* (Pp. 246. No price given.) Paris: Vigot Frères.

Dr. Jean Trabaud, who has been professor of clinical medicine in Damascus for fifteen years, has put together for publication his collection of personal notes on diets, medical, surgical, and special bacteriological methods for the treatment of diseases, and has produced a series of handy booklets covering the various aspects of general and special medicine—a veritable encyclopaedia of therapeutics in miniature. Apparently produced originally in Arabic for the use of his students, they now appear enlarged and in French, making a wider appeal.

Each booklet covers one of the systems of the body: the first deals with infections and intoxications, the next with respiratory diseases, and so on; each in 200 pages or more gives a summary of the main clinical features of the complaint, its dietetic and general management, the medical treatment with detailed prescriptions, and indications to meet subsidiary symptoms and complications, surgical indications where necessary, and a supplementary reminder of the dosage of drugs which have been recommended. The author's readers in following his directions may be assured of doing the right thing; it might have been better had he more often indicated with emphasis the best thing.

The first five booklets which have been received cover general medicine, the three projected volumes dealing with gynaecology, diseases of infants, and diseases of eye, ear, nose, throat, and skin so far as a general practitioner needs. The price appears to be about five to seven shillings a volume, the general standard of advice given is sound and practical, and as an aide-mémoire to those who read French the little books will appeal and give satisfaction. Each has a good index and table of contents, so that information sought may readily be found.

BACTERIOLOGY

Pathogenic Micro-organisms. A Practical Manual for Students, Physicians, and Health Officers. By William Hallock Park, M.D., and Anna Wessels Williams. Eleventh edition, revised and enlarged. (Pp. 1,056; illustrated with 247 engravings and 13 full-page plates. 40s.) London: Baillière, Tindall and Cox. 1939.

Laboratory Manual for General Bacteriology. Compiled by George L. Peltier, professor of bacteriology; Carl E. Georgi, assistant professor of bacteriology; Lawrence F. Lindgren, instructor in bacteriology, University of Nebraska. Second edition. (Pp. 280. 12s. net.) New York; John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd. 1939.

A melancholy addendum to the eleventh edition of Park and Williams's *Pathogenic Micro-organisms*—introduced in front of the title-page evidently after the volume was bound—is a short obituary notice and an admirable portrait of the senior author. W. H. Park was an outstanding figure in American microbiology, and no one in the world has done more to secure the widespread application of efficient bacteriological diagnosis and specific methods of immunization in the interests of public health. The possibilities of prevention are exceptionally fully treated in this book, and not only in connexion with diseases such as diphtheria, for which the methods available are well-nigh perfect; there are no fewer than seven pages on the more difficult and debatable question of immunization against tuberculosis. This is not to say that any one aspect of medical microbiology is over-emphasized at the expense of others; as a guide both to theory and to practice this work is as complete and satisfying from every standpoint as a single volume can be. There are new chapters on viruses, fungi, protozoa, bacterial variation, and bacterial metabolism; these and other additions are the work of many collaborators with specialized knowledge. This system of multiple authorship has caused no loss of balance or unity, and everyone concerned is to be congratulated on a valuable production.

The *Laboratory Manual for General Bacteriology*, by Peltier, Georgi, and Lindgren, is a new kind of book, the only purpose of which is to furnish detailed instructions for students' practical work. This consists of fifty-seven exercises; and statements of the purpose, materials required, and methods of procedure and of recording results are followed by a series of questions which the student should be able to answer, not, of course, from the contents of the book—since this includes no theory at all—but presumably from the matter of a preceding lecture. The instructions for work are usually adequate, but more information about some of the materials used would help; the test for indol, for example, is made with "Kovac's reagent," but the composition of this is undisclosed. The exercises cover a wide field, and form a groundwork for industrial as well as medical bacteriology. Teachers will gain useful ideas from them, but it would perhaps be a pity if instruction became stereotyped by their widespread adoption *in toto*.

TOXICOLOGY WITHOUT TEARS

Poison Parade. By William F. Boos, M.D. (Pp. 288. 12s. 6d.) London: Jarrolds, Publishers (London).

Poison Parade, by Dr. W. F. Boos, is written for the general public, but the medical profession will find it both interesting and instructive. The author has devoted most of his life to the study of poisons and has an exceptional knowledge of the subject. He first gave expert evidence in a poison trial in 1890, and since then has had experience of 200 such cases. He has also conducted several investigations for public bodies in relation to food storage and food poisoning. As regards criminal poisoning he notes that arsenic was used in 85 per cent. of the cases examined by him; moreover, marked racial tendencies are shown in regard to the use of poisons. Criminal poisoning is unusual among Anglo-Saxons, but to natives of Central and Southern Europe killing means to poison and poisoning means the use of arsenic.

The chapters on food poisoning are very instructive. A clear summary is given of the history of ptomaines, and the author points out that nearly all cases of so-called "ptomaine poisoning" are in reality bacterial infections. In his chapter on botulism the author notes that between 1899 and 1922 only 345 cases of botulism were reported in North America, and that during the last fifteen years he has investigated countless charges against food-canning companies but has not encountered an authentic case of poisoning of any kind traced to commercially canned food. Interesting facts are also given regarding industrial poisoning. For example, a number of cases are recorded in which house painters suffering from turpentine poisoning have been diagnosed as cases of lead poisoning.

These few examples indicate the wide range of subject-matter covered by Dr. Boos. The material is mainly anecdotal, but the anecdotes are nearly all drawn from the author's personal experiences and the book makes easy reading.

Notes on Books

For those who are not acquainted with the first edition of Dr. A. B. WADSWORTH'S *Standard Methods in Laboratory Work*, which was published in 1927, it may be remarked that this volume covers a wide field. As its full title implies, it is essentially a record of the technical methods used in the New York State Laboratory at Albany. It includes a description of general laboratory procedures, the preparation and composition of bacteriological media and of staining reagents, routine methods of examination used in the diagnosis of infective disease, the bacteriological and to some extent chemical examination of water, sewage, and milk, a limited amount of clinical pathology, and the preparation and standardization of toxins, toxoids, antitoxins, vaccines, and diagnostic sera. This last section alone occupies nearly 200 pages. The administrative procedure used in the office and in the library is also briefly referred to, and in appendices are given extracts from public health law in the United States, as well as illustrations of the standard outfits used in diagnostic work. In a volume of little more than 600 pages it is impossible to give a detailed account of all the technical procedures mentioned, and many of the descriptions are necessarily perfunctory. It would therefore be wrong to recommend this work as a manual of technical instruction. On the other hand, it is of considerable interest to know what methods are used in one of the largest public health laboratories in the United States, and to learn how the general organization of the work is handled. If the much-needed expansion of the laboratory services of this country comes to pass, *Standard Methods* should serve as a useful work of reference to directors of laboratories and to others engaged in technical examinations of various types. It is published in England by Baillière, Tindall and Cox at 41s.

Dr. JAMES B. MENNELL has now produced a fourth edition of his classical work on *Physical Treatment by Movement, Manipulation and Massage* (J. and A. Churchill, 25s.). Each section has been revised and brought up to date in the light of recent knowledge of the subject. Throughout the author is insistent on the value of massage as an agent producing reflex action as well as its more obvious mechanical action, and he produces abundant evidence of this in every chapter. There is a section dealing with massage as a remedy in the treatment of the wounded, which adds to the topical interest of the book. It is profusely illustrated, and special mention should be made of the simple and ingenious line drawings in two colours, as on page 449. This new edition of Dr. Mennell's book provides even greater value than former editions, because it forms a complete and up-to-date guide to the subject.

Dr. ELMER L. SEVRINGHAUS is well known on this side of the Atlantic as the capable editor of the endocrine section of the *Year Book of Neurology, Psychiatry and Endocrinology*. He is therefore well qualified to decide what *Endocrine Therapy in General Practice* is important for the practitioner to know. He has succeeded in summarizing the essentials in the small compass of 230 pages, which should meet the requirements of those who cannot possibly toil through long monographs. That his method is acceptable to his audience is proved by the fact that this is the third edition called for since September, 1938. It has been thoroughly revised and a new chapter on the special endocrine problems of children and adolescents has been added. There are a good number of illustrations which should be a real help to those who only encounter such cases occasionally. The book is published in Chicago by the Year Book Publishers, Inc., and in London by H. K. Lewis and Co. at 15s.

A Handbook of Radiography, by Dr. JOHN A. ROSS (London: H. K. Lewis and Co., 7s. 6d.), is an elementary account of routine radiographic technique, clearly and concisely written, and illustrated by sixty-six line drawings. It is written for radiographers and students of radiology, and is to be recommended to those taking up these subjects. Its publication is opportune in view of the increased demand for radiographers in wartime, and it fills a distinct gap in *x*-ray literature.

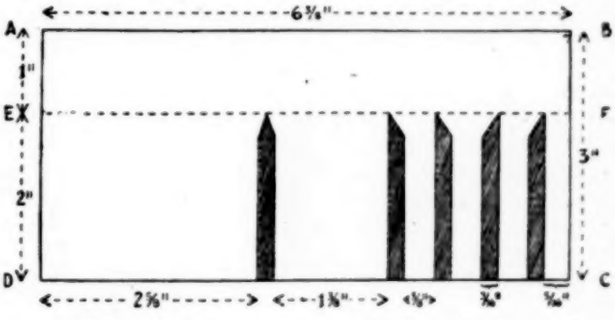
Preparations and Appliances

A HOME-MADE DIFFERENTIAL LEUCOCYTE COUNTER

Dr. K. W. TODD, resident physician, Milton Abbey, writes:

To know when the total cells counted is a multiple of 100, and to make records with the left hand and without moving the eye from the microscope, are two of the problems of differential counts. They may be solved as follows:

A card ABCD, bent at EF to form two slopes, is framed so that the further slope holds 100 ball bearings of ¼ in. diameter. The nearer EFCD is divided into six compartments



into which the balls are touched as the corpuscles are counted. The dimensions are such that the balls lie in twenty-fives, tens, and fives for ease of counting. Allowance is made for up to ninety polymorphs, up to forty-five lymphocytes, ten each eosinophils, basophils, and mononuclears, while the last compartment can be used for excesses over any one of these or for any special cells or parasites to be counted.

The diagram reproduced herewith on a reduced scale shows the lay-out of the card. As the count of 100 can be repeated, there is no need to enlarge the frame to hold more. Ordinary ¾ in. curtain-rod split into four with a fret-saw makes good frames and partitions; split into two and stuck along EF behind, it supports the slopes at a suitable angle.

THREE DRUGS WITH NEW NAMES

"Carbachol" (Burroughs Wellcome and Co.) is a preparation of carbaminoyl choline, a substance originally introduced under the proprietary name of "doryl." It is a choline ester that is not destroyed by choline esterase and hence produces a parasympathomimetic action when given either by mouth or parenterally. It has been found valuable in relieving intestinal atony and retention of urine due to atony of the bladder.

"Corvotone" (Boots Pure Drug Co.) is the analeptic originally introduced under the proprietary name "coramine" and for which the British Pharmacopoeia Commission suggest the title "nikethamide." This substance has achieved great popularity as a medullary stimulant. One of its chief virtues is its low toxicity.

"Hexobarbitone soluble" (Burroughs Wellcome and Co.) is a preparation, put up in a form ready for use, of the intravenous barbiturate anaesthetic which was originally introduced under the name "evipan sodium." This product is rapidly soluble, the resulting solution being clear and water-white.

METHEDRINE

"Methedrine" (Burroughs Wellcome and Co.) is described as d-methylisomyn. Isomyn is also known as benzedrine, and methyl benzedrine was introduced into clinical use in Germany in 1938 under the name "pervitin." Methedrine has actions similar to benzedrine. It causes prolonged rise of blood pressure and stimulation of the central nervous system. It is indicated in the treatment of narcolepsy and as an analeptic in barbiturate poisoning, etc. The makers recommend a dose of 2 to 4 mgm., which indicates that methedrine is more powerful than benzedrine.

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STONE IN THE KIDNEY

One of the many problems encountered by animal life on changing from an aquatic to a terrestrial habit was to secure the adequate excretion of sparingly soluble material in a relatively small quantity of water. Calculus formation may be regarded as a failure at some point in the adaptations necessary to this end. Mr. Swift Joly[1] recently reviewed the whole question on the broadest lines at the seventh Congress of the International Society of Urology held in New York, and from his admirable paper, together with certain other communications,[2] some interesting conclusions may be drawn. The solubility of stone-forming substances depends on (1) the hydrogen-ion concentration of the urine; (2) the presence of certain other electrolytes or non-electrolytes; (3) the protective action of non-albuminous urinary colloids. Uric acid is deposited at a *p*H of about 5, phosphates and carbonates at a *p*H of 8, and other substances possibly at intermediate levels; it would therefore appear that some type of calculus formation may occur throughout the entire range of reactions ordinarily observed, and regulation of this must depend on the particular form of lithiasis. As to the second factor, both uric acid and calcium oxalate are more soluble in a solution of urea than in plain water. In connexion with the third factor, Sir J. J. Thomson showed that the apparent solubility in water of sparingly soluble salts is increased a thousand-fold in starch solution; some such mechanism is necessary to account for the remarkable solubility of stone-forming substances in urine. Before a stone can form there must be the deposit of crystals or the presence of a supersaturated solution; the retention of minute fragments of such; and the coagulation of urinary colloids as a "gel" instead of the normal finely divided suspension or "sol."

It has recently become clear that one of the most important factors in upsetting the adaptive mechanisms of excretion is diet. Stone, however, does not as a rule arise from excess of stone-forming substances in the diet, and it may be largely composed of substances which are absent from, or present only in traces in, the food. Oxalates are an exception to this statement, and in certain cases spinach, sorrel, rhubarb, and asparagus—which contain more than 2 grammes of oxalic acid per kilo—and excess of chocolate should be eliminated from the diet to avoid oxaluria. Yet strawberries, which often seem to cause symptoms and so are prohibited, contain only 0.06 gramme per kilo. Nevertheless many individuals pass envelope crystals of oxalates for years without developing calculus; it is the appearance of abnormal forms of crystals that provides a significant warning. It is useless to try to control oxaluria by diminishing the calcium intake or by increasing the magnesium–calcium ratio, from which much help was formerly expected. It is of course only reasonable to restrict the intake of purine-containing foods in those who are liable to pass uric acid, though a reduction of total calorie intake is almost as important. In this condition, too, whetstone crystals seem to be harmless and abnormal forms suspicious. Stone is much more common among those subsisting on an inadequate, monotonous, ill-balanced diet. It is more a disease of the poor than of the rich, although the food of the latter contains a much greater proportion of stone-forming substances. It was not always the case, as readers of Montaigne will know, and Prof. J. C. Drummond[3] has adduced an interesting reason for this. Galen's belief that fruit and vegetables were apt to cause fever persisted until towards the end of the seventeenth century, so that they were looked upon as poor men's food and were left for them. As a result the richer classes suffered most from stone, until the belief was abandoned, when the well-to-do secured most of the supply of such foods and the poor went without. Since the improvement in the diet of the poorer classes vesical calculus, formerly so rife, has become comparatively rare, and the apparent increase in upper-tract calculus may well be due to improved methods of diagnosis.

The importance of vitamins in preventing stone is now clearly recognized, especially vitamin A. Of all the cases of renal calculus investigated at Pennsylvania Hospital 96% were found to be deficient in this vitamin by the dark-adaptation test.[4] Hilary Long and Pyrah[5] suggest that there must be a great depletion of vitamin A reserves to produce a tendency to calculus formation, since daily doses of 13,000 units over four to five weeks did not effect any great improvement in the results of the photometer test. It is, however, recognized that it is difficult to make good deficiencies in this vitamin established in early life. McCarrison showed that deficiency in vitamin A was even more apt to induce the formation of stone if lack of vitamin C was also present. Such defects in diet are most likely to occur during the winter months, and stone is rare where dairy farming is common. Neville in 1935 found that oxaluria was apt to appear in vitamin B deficiency. This has become of special interest now that the importance of this vitamin in the nutrition of the neuron is recognized, for oxaluria is so frequently associated with nervous states. It has been suggested that tropical lithiasis is connected with excessive formation of vitamin D by sunlight, but this would lead to calcium phosphate stones, which are distinctly rare, apart from an infected tract. Much stress has been laid on an infected tract as a factor in the causation of stone. Certainly infections may increase the *p*H and bring about the precipitation of phosphates; they may split the urea molecule, with the resulting deposit of ammonio-magnesium crystals —an abnormal constituent; they may lead to the

[1] Reports of Seventh Congress of the International Society of Urology, New York City, 1939, 77–135.

[2] *Urol. cutan. Rev.*, 1939, **43**, 656; 1940, **44**, 161, 214. *J. Amer. med. Ass.*, 1939, **113**, 1460, 1466, 1471.

[3] Drummond, J. C., and Wilbraham, A. 1939, *The Englishman's Food*, 154 et passim, London.

[4] *J. Amer. med. Ass.*, 1937, **109**, 1706.

[5] *Brit. J. Urol.*, 1939, **11**, 216.

formation of foreign bodies on which crystals can be deposited; they can cause tissue exudates containing foreign colloids, and they can convert sols into gels. Despite all this, stones can form in sterile urine, and the presence of micro-organisms may be secondary to the stone. More stress is now laid on vitamin deficiency; Rosenow and Meisser, however, considered distant focal sepsis to be an important factor.

Abnormalities of general metabolism certainly play a part in the production of cystin stones, but it is more probable that gout and lithiasis have a common cause than that the latter is a sequel of the former. There does not appear to be sufficient evidence that hyperparathyroidism, in itself very uncommon, is a really important factor, as has been alleged. Flocks in 1939 found a high blood calcium in twenty-three out of thirty-five cases of renal calculus, but only two of these showed any clinical evidence of hyperparathyroidism. Anything leading to stasis of urine may naturally be a contributory factor. Trauma, particularly severe fracture, seems to act simply from the necessary immobilization, which causes a partial decalcification of the skeleton and consequent increased elimination of calcium salts. That this and not the accident is the cause is shown by the success obtained at Carshalton in preventing renal calculi in children with tuberculous joints by putting the patients under shelter during the two hottest hours of the day, by increasing the fluid intake, and by allowing the spinal frames to be tilted from side to side at intervals.

Mr. Swift Joly sums up the situation thus: inadequate diet is the most important single factor in the causation of renal calculus. The problem will be solved not so much by measures specially directed to the stone as by the improvement of general social conditions.

THREATENED ABORTION

Although great success has been claimed in the treatment of threatened abortion by substances such as progesterone and vitamin E, most critical observers remain sceptical of their value. The treatment of this condition has as yet benefited relatively little from the rapid increase in knowledge of the nature and action of the sex hormones which has taken place during recent years. It is now believed that in many cases of threatened abortion, possibly the majority, the fault lies in an abnormality of the foetus, and if this be true, then hormone treatment is not likely to be of value. Browne, Henry, and Venning[1] have recently tried to determine the extent to which abnormality of hormonal metabolism is responsible for threatened and habitual abortion, and have investigated the excretion of gonadotrophic substance, oestrogens, and sodium pregnandiol glucuronidate in the urine of thirty-five cases. They believe the last substance to be the excretory end-product of progesterone metabolism, and have previously produced much evidence in favour of this view. From consideration of their own results in this series of cases and from the findings of others they have formulated a conception of the hormonal mechanism of normal pregnancy and suggest certain disorders of this function which may lead to abortion. They believe that the great rise in production of gonadotrophic hormone which normally occurs during the second month serves to stimulate the ovary, and especially the corpus luteum, to continued activity. This stimulus declines sharply after the third month, and as a result the corpus luteum begins to degenerate. From this time onwards the continued output of both oestrogen and progesterone, which are necessary for the maintenance of pregnancy, is taken over by the placenta itself. There is good evidence that the placenta develops such endocrine functions. It is very difficult to explain on any other assumption the well-established fact that excision of the ovaries, with the corpus luteum, in the first or second month of pregnancy frequently does not prevent the gestation continuing to full term, and, moreover, interferes only temporarily with the manufacture of oestrogens and progesterone. There is thus believed to be a transition period at the end of the third month, when production of hormone is being transferred from the ovary to the placenta. Browne, Henry, and Venning point out that this coincides with the time of greatest tendency to abortion. They suggest that if for any reason this transition is not smoothly effected the normal decline of ovarian activity at this time may be inadequately counteracted by the placenta, so that the output of oestrogen and progesterone falls to a level too low to maintain the pregnancy, and abortion will occur. They present evidence of two causes of failure to effect this transfer of hormonal function at the critical period. In some cases secretion of gonadotrophic substance is abnormally low from an early stage, so that the corpus luteum, being inadequately stimulated, retrogresses before the placenta is ready to take over its function. In most cases of this type the gestation is degenerate, and therefore no benefit may be expected from hormone therapy either by gonadotrophin or progesterone. In the second type abortion threatens because the placenta is slow in starting the formation of progesterone. In one of their cases it did not occur until the beginning of the sixth month. In cases of this type the therapeutic use of progesterone is much more logical, but Browne and his colleagues emphasize that dosage must be adequate, quantities of less than 5 mg. per day being unlikely to have appreciable effect. Clearly, also, its administration must be continued until there is evidence that the placenta is beginning to assume its proper endocrine function. Moreover, as these workers point out, treatment in such cases should theoretically be begun before clinical symptoms are observed, for by that time the gestation may have suffered serious damage. At present there are clearly great practical difficulties in applying these principles to the routine treatment of threatened abortion, for the indications for hormone therapy are only to be obtained by time-consuming hormone assays. The views of Browne, Henry, and Venning should stimulate search for simpler clinical means of differentiating their two types of threatened abortion and so bringing within reach of all the possibility of a more rational form of therapy.

[1] *Amer. J. Obstet. Gynec.*, 1939, **38**, 927.

THE VITAMIN L COMPLEX

About two years ago Nakahara *et al.*[1] claimed to have shown that two factors not hitherto recognized were necessary for the lactation of young rats. Factor L1 only was found in beef-liver extract and factor L2 only in yeast. It has lately been suggested that this vitamin L complex is identical with the "liver filtrate factor" shown by Morgan and Simms[2] to be necessary for the lactation of young rats, or with the factor W (filtrate factor) of Sure.[3] Nakahara *et al.*[4] do not agree, on the grounds (*a*) that their vitamin-L-deficient diet did in fact contain the filtrate factor in the polished rice powder constituent (the diet, when extracted with alcohol, resulted in subnormal growth); and (*b*) that vitamin L is really a complex of two substances of which one only is found in liver filtrate and the other one only in yeast. There is a good deal of evidence that both liver filtrate and yeast filtrate contain at least two factors necessary for the growth of the rat. The two factors of the one source are probably identical with the two factors of the other. Whether vitamin L1 or L2 is identical with either of these or with still other substances in "filtrates" will probably only be settled when each has been obtained in a pure form.

WAR SURGERY: INFORMATION WANTED

The conditions of the campaign in France and Flanders in May and June of this year made it difficult to assess with any degree of scientific accuracy the value of methods of treatment that were being tested in the field. Information is particularly wanted on such matters as blood transfusion, sulphanilamide packs, intravenous anaesthesia, prophylaxis against tetanus. Blood transfusion equipment and trained personnel were available at casualty clearing stations. Whole blood, plasma, and saline and glucose solutions were provided. A carefully worked out organization came through a severe testing time with very great credit and a large number of transfusions were successfully performed. What is wanted now is a careful assessment of the relative merits of the fluids used and further information about the length of time blood can be stored and still be safely transfused; it appears that this was done with blood that had been stored for considerably longer periods than those recommended, the operator often having no choice in the matter. It cannot, of course, be expected that all the details can be sifted and the whole subject submitted to a scrutiny that would satisfy a medical statistician now; but, however incomplete, it is essential that the knowledge and experience gained should be placed at the disposal of medical men in this country, for at any moment they may find themselves in the front line, whether serving with the Forces or not. At the outset of war it was of course recognized that a great opportunity would be offered for the testing of sulphonamide compounds in both treatment and prophylaxis. The opportunity has been taken, and now a number of questions remain to be answered. What were the doses used? What was the value of powdering wounds with sulphanilamide? Did this have any effect on the incidence of gas gangrene? Is it possible to arrive at a provisional estimate of the incidence of gas gangrene and compare it with that of the war of 1914–18? Similar comparisons could be made in the case of wound infections in general. In asking these questions we do not underestimate the difficulties facing those who are at the moment trying to answer them. In the nature of things records must be incomplete, and in many cases lost or destroyed in the evacuation from the battlefield. Those responsible for receiving and treating convoys of wounded at hospitals in this country should be in the best position to complete the medical story which was begun in France, and perhaps the ideal would be for medical officers who were there to collaborate with them and to pool their experiences and information for a wider medical public. We would here stress again that those who have had this experience should not withhold it because of its incompleteness or because they cannot prepare their material for publication in as detailed and thorough a way as is expected in times of peace. The time for statistical exactitude and complete exposition will come later. The times are now too urgent for refinement. But there is perhaps one subject on which fairly exact information might be obtained, and that is a comparison of the incidence of tetanus in this war and in the last.

[1] *Science*, 1938, **87**, 372.
[2] Ibid., 1939, **89**, 565.
[3] *J. Nutrit.*, 1940, **19**, 57.
[4] *Science*, 1940, **91**, 431.

THE HEALTH SERVICES: A SOCIALIST CRITICISM

The Oxford Committee of the Fabian Society has begun to review the health services of this country with a report on the main "personal" branches of these services—namely, maternity and child welfare, school health, and tuberculosis.[1] The writer, Mr. R. B. Thomas, believes that a radical revision of the whole health system is needed and that it is likely to be accelerated by the war, but that some improvement could be effected even now, and that in any case a realization of the shortcomings is a necessary preliminary to any reform. His survey of the existing services is accurate in its facts, and the pamphlet may be regarded as a good description of the type of provision made by local authorities in these three branches of public health, and of the variation as between one place and another. This unevenness is one of the main subjects of criticism. Support is given to the view, now widely held in the medical profession, that progress will be difficult until the profusion and overlapping of authorities are abolished. In its approval of the general character of these services the report is conservative. Clinics of all kinds should be encouraged and developed and made attractive rather than reduced, as the B.M.A. report on a General Medical Service for the Nation advocated, although it is realized that in rural areas the private practitioner's help may be necessary. Mr. Thomas is definitely against a self-selected list of practitioners to be summoned in emergency by midwives, believing that midwifery is a specialist occupation, at least in towns. He thinks that the balance of advantage is with hospital as against domiciliary confinement, one of the reasons being the greater ease and safety of anaesthesia in institutions. Emergency units working from hospitals should be developed for urgent attention to the diminishing number of domiciliary confinements. He accepts the Rhondda figures as proving that the stillbirth and neo-natal death rates can be greatly reduced by overcoming vitamin deprivation during the ante-natal period, and pleads for a great extension of the communal provision of nourishment for pregnant and nursing mothers and children from infancy to adolescence. Mr. Thomas is against the complete suspension of routine medical examinations of school children, but he would also like to see arrangements made for more frequent special inspections on the least sign of departure from normal health. He sees that the functions and boundaries of the school medical service, which now affords so much clinical treatment, will have to be radically altered as soon as a national medical service

[1] *The Health Services*. By R. B. Thomas. Research Series No. 49. Fabian Society. 1940. (Pp. 44. 1s.)

comes into being. As regards tuberculosis, his main criticisms are directed against the shortage of institutional beds and the embryonic state of our attempts at after-care. Although many Socialists are still believers in the small area of local government, it is clear that Mr. Thomas fully realizes that efficient organization requires bigger units, and that certain services, like special residential schools and industrial village settlements, must be planned on a regional scale. He would also have the Minister of Health vested with greater power to enforce a more uniformly high level of attainment by the authorities responsible for these services. It will be remembered that the B.M.A. pressed for this policy in connexion with the Cancer Bill, and that Section 1 of the Act enables the Minister to compel the combination of local authorities for greater efficiency.

INFECTIVE HEPATITIS

Jaundice either in sporadic or more commonly in epidemic form is a by no means infrequent condition, more especially in children and young adults. Cullinan,[1] in discussing its epidemiology, records no fewer than twenty-three outbreaks in this country in the last thirteen years, and there have been at least six others which have not been reported in print. Yet despite its frequence and its ubiquity—for the disease is worldwide in its distribution—there is still uncertainty about not only its aetiology but also its pathology. This uncertainty is due to failure to transmit the disease to lower animals and to the fact that the death rate is extremely low. The present state of knowledge on the subject has now been reviewed by Findlay,[2] who on pathological evidence concludes that the great majority of cases of what was formerly termed epidemic catarrhal jaundice are due to an acute hepatitis. Undoubtedly, however, a few sporadic cases of jaundice, clinically indistinguishable from those of true infective hepatitis, have been found to be due to a catarrhal condition of the mouth of the common bile duct. Such cases have been recorded by Virchow[3] and Eppinger,[4] and in later years by Hurst and Simpson[5] and Barber and Osborn.[6] But there is no evidence that the epidemics of jaundice met with in this country and throughout Europe are associated with any such catarrhal condition of the duodenal mucosa. The view that the underlying lesion in these cases of jaundice is an acute hepatitis has been greatly strengthened by the observations of Roholm and Iversen[7] in Copenhagen. Thirty-eight aspiration biopsies were carried out on the livers of twenty-six persons suffering from acute jaundice. Four were syphilitics who had recently had arsphenamine treatment, while a fifth, though not a syphilitic, had received the same drug; two were chronic alcoholics. The biopsies were performed from the third to the fifty-first day after the appearance of the jaundice and in every case the pathological lesions were similar. They consisted of destruction of the trabecular arrangement of the liver cells, necrotic disintegration of the parenchymatous cells, more especially in ill-defined foci of variable size, infiltration with mononuclear cells, and a variable degree of connective-tissue proliferation. The interlobular bile ducts were normal. The hepatitis was pronounced in the first week after the onset of jaundice and as a rule subsided within a month, the whole process strongly pointing to a haematogenous origin. Here it is to be noted that no bacteria of aetiological significance have been isolated from cases of infective hepatitis, but observations on human beings carried out by Findlay, MacCallum, and Murgatroyd[8] suggest that the condition is very probably caused by a virus. Although the value of glucose in acute hepatitis, first pointed out by Umber[9] in 1922, has now been amply confirmed, it is of interest that Krarup,[10] in studying the biopsy material obtained by Roholm and Iversen, could not detect any marked change in the amount of liver glycogen, except in one case of infective hepatitis which had been followed by acute liver necrosis.

SULPHONAMIDES AND IMMUNE SERUM FOR MENINGOCOCCAL MENINGITIS

Though there is general agreement that the use of the sulphonamide drugs, particularly sulphapyridine, marks a great advance in the treatment of cerebrospinal meningitis, it is still uncertain whether the combined use of a sulphonamide derivative and immune serum is preferable to chemotherapy alone. So far as meningococcal infections in mice are concerned, the extensive results of Branham and Rosenthal[11] and Brown[12] show that serum and sulphanilamide together give much more satisfactory results than sulphanilamide alone. Branham[13] has since extended these observations to sulphapyridine, and finds that in experiments involving some 15,000 mice the combined action of the serum and drug on a number of strains of meningococci was always superior to that of either drug alone or serum alone. One serum, curiously enough, had practically no protective action on any meningococcal strain when used by itself, but gave much protection when combined with either sulphapyridine or sulphanilamide. Amies[14] has recently confirmed these results on mice. The meningococcus, however, causes in mice a septicaemia rather than a meningitis, so that it is not always possible to compare directly the results of treatment in man and in animals. In evaluating the treatment of man certain initial difficulties also are encountered. Thus in a recent discussion at the Royal Society of Medicine Dr. H. S. Banks[15] pointed out that for the first quarter of the year the death rate among 4,388 civilians suffering from meningococcal meningitis in England and Wales was 23.7%, while among 705 non-civilians it was 11.3%, or less than half. If satisfactory evidence of the effects of treatment is to be obtained it is essential that the affected populations should be as near as possible of the same character and constitution, and also that the infecting strains of meningococci should be of approximately equal virulence, since virulence may vary from year to year or from one outbreak to another. With these difficulties to overcome it is perhaps not surprising that somewhat contradictory results should have been obtained. Thus Clyde and Neely[16] in a small number of cases obtained better results with a combination of sulphanilamide and antitoxin than with sulphanilamide alone. Waghelstein,[17] however, had only eleven deaths in seventy-two patients treated with sulphanilamide alone, but eight deaths in thirty-four patients treated with the drug and immune serum. Dr. Banks also concludes that serum is no longer necessary. Among seventy-two patients treated with serum and sulphanilamide in 1937–8 twelve died, a gross mortality of 16.9%, while in 1938–9 with sulphanilamide and sulphapyridine but no serum the gross mortality among eighty cases was only 6.25%. On the other hand, in Shanghai,

[1] *Proc. roy. Soc. Med.*, 1939, **32**, 933.
[2] *J. R.A.M.C.*, 1940, **74**, 72.
[3] *Virchows Arch.*, 1865, **32**, 117.
[4] *Wien. klin. Wschr.*, 1908, **21**, 480.
[5] *Guy's Hosp. Rep.*, 1934, **84**, 173.
[6] *J. Path. Bact.*, 1939, **49**, 581.
[7] *Acta path. microbiol. scand.*, 1939, **16**, 427.
[8] *Trans. roy. Soc. trop. Med. Hyg.*, 1939, **32**, 575.
[9] *Klin. Wschr.*, 1922, **1**, 1585.
[10] *Acta path. microbiol. scand.*, 1939, **16**, 443.
[11] *Publ. Hlth. Rep., Wash.*, 1937, **52**, 685.
[12] *Johns Hopk. Hosp. Bull.*, 1937, **61**, 272.
[13] *Publ. Hlth. Rep., Wash.*, 1940, **55**, 12.
[14] *Lancet*, 1940, **1**, 999.
[15] *British Medical Journal*, 1940, **1**, 863.
[16] *Sthern. med. J.*, Birmingham, Ala., 1939, **32**, 594.
[17] *J. Amer. med. Ass.*, 1938, **111**, 2172.

Jordan, Blakelock, and Johnston, who have recently recorded their experiences in these columns.[18] obtained far better results when either immune serum or antitoxin were combined with sulphapyridine. It is obvious that before definite conclusions can be drawn a very large series of patients from the same epidemic must be treated alternately by the two methods.

RICKETTSIA IN TREATMENT OF G.P.I.

Kawamura and Uéda[19] in Japan have lately used a rickettsial organism (*Rickettsia tsutsugamushi-orientalis*) in the treatment of general paralysis of the insane. The Rickettsia is inoculated intramuscularly in an emulsion of testicle in Ringer's solution from a rabbit infected with the organism, or alternatively with 3 to 5 c.cm. of blood from an infected patient collected during a febrile period. In nineteen cases there were eight recoveries, nine incomplete remissions, two unchanged, and one death, occurring long after the treatment. In fourteen of the cases there was a return to a normal cell count within eleven months, in five there was diminution in the strength of the Wassermann reaction, and two became completely negative serologically. The series is small, but so far as they go the results compare favourably with the 30 per cent. remissions commonly claimed for the average series treated with malaria. Moreover, the authors consider that the dangers are much less. There is the additional advantage that, unlike the *Plasmodium malariae*, the organism can be cultivated outside the body, and mutual infection does not exist. If these claims are confirmed by the result of treatment of a large number, then an advance will have been made in convenience and safety; but whether any method which involves infection by a Rickettsia will survive the increasing use of the more controllable method of producing pyrexia by diathermy remains to be seen. Whatever method is used, the problem of general paralysis has come to be more and more a problem of early diagnosis, on which depends the efficacy of any treatment. Here it is worth stressing the importance of complete serological examination of the immediate family of a general paralytic. The work of Nicol and Hutton has shown how often the cerebrospinal fluid will prove positive in the apparently normal wife and offspring of the general paralytic. It is of interest also to observe how—as seems not rarely to have happened in medicine at a time when a new and efficacious method of treatment has been introduced—the disease itself appears to be decreasing in frequency. There is reason to think that this has been the case with general paralysis over the past twenty years.

SURGERY OF THE NASAL SINUS

Although the relative merits of conservative and radical surgery of the nasal sinus have been discussed time and again since the beginning of the century, no conclusion has been reached as to the best technique to employ in every case. Recent interest in the physiology of the nose, stimulated by the work of Proetz and others, has, however, lent weight to the arguments of the more conservative surgeons. In a series of papers read as part of a symposium at the annual meeting of the American Laryngological, Rhinological, and Otological Society an attempt was made to assess the end-results of operations on the nasal sinuses. Hempstead[20] found that in 1,634 cases from the literature on maxillary sinusitis a good result was obtained in 97 per cent. by the intranasal window operation; the discharge ceased and the antral mucous membrane became normal. Even polypoid and badly infected membranes appeared normal after adequate drainage and ventilation had been established. Salinger,[21] who discussed the radical operation, emphasized the advantages which exposure of the antral mucosa by the external approach gave to the surgeon in removing any chronically diseased and polypoid areas of mucous membrane. Further, the transantral route afforded a good access in cases where there was coexisting chronic spheno-ethmoidal sinusitis requiring surgical intervention. Diseased frontal sinus should be dealt with through a separate external incision, as advocated by Ferris Smith and others in America and by Howarth in this country. In England the results of the intranasal operation properly executed have been sufficiently satisfactory in the hands of most rhinologists to make this the technique of choice. The radical operation is reserved for those cases which have resisted intranasal measures or in which there is such gross disorganization of the mucous membrane that recovery is not expected. It is not without interest to remember in this connexion that, as the researches of Proetz have demonstrated, a moist, though polypoid, membrane on which actively motile cilia can often be found may be preferable to the scar tissue which replaces it after a radical procedure. At the same time it must be agreed that for severe chronic sinusitis the radical operation offers a better prospect of a lasting relief of symptoms than does the intranasal approach. The latter is restricted by the need for care in so limited a field of vision in avoiding injury to vital surrounding structures. By careful clinical, radiological, and pathological investigations it should be possible in most cases to decide on the method of choice for the particular patient, thereby avoiding precipitate or inadequate sinus surgery.

FRESH VEGETABLES IN HOSPITALS

The present abundant crop of vegetables in market and private gardens and allotments makes a big addition to the national larder of protective foods. It is a real contribution to the national war effort. Cabbages, lettuces, peas, beans, carrots, marrows, and turnips are now in full season, and the fullest advantage should be taken of this abundance. The pre-war consumption of green and root vegetables (excluding potatoes) was about 3 oz. a head a day. This is much too low, and should be doubled. The allotment campaign is playing a useful part in increasing vegetable production, but the season of fruitfulness obviously cannot be maintained indefinitely, and the depth of winter will find us with a smaller choice of these excellent supplies of vitamins, minerals, and salts. In his position as health adviser to the individual patient the general practitioner can urge, in season and out, the value to health of fresh vegetables and fruit. And medical men who take part in the administration of hospitals may exert their influence in the same direction, and discourage the use of tinned vegetables at the present time. It is self-evident that the tin-opener should be put on one side against times of scarcity. Unfortunately many institutions use some tinned vegetables, even in the summer, in preference to fresh. This is not in the national interest. All hospitals within the Emergency Medical Scheme and institutions under the local authorities have received a circular from the Minister of Health urging that the maximum use should now be made of fresh vegetables. This exhortation applies with equal force to voluntary hospitals and other institutions. Such vegetables as beans can easily be stored for use in the winter. The Ministry of Agriculture has recently issued a booklet, "Preserves from the Garden," describing the best methods of preserving vegetables, and those responsible for catering in institutions are well advised to procure it.

[18] *British Medical Journal*, 1940, **1**, 1005.
[19] *Presse méd.*, 1940, **48**, 179.
[20] *Arch. Otolaryng.*, Chicago, 1939, **30**, 711.
[21] *Arch. Otolaryng.*, Chicago, 1939, **30**, 721.

NOCTURNAL ENURESIS

EXPERIENCES WITH EVACUATED CHILDREN

BY

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During the first four days of the war about 14,000 children were evacuated from London and Croydon into Brighton, and homes were found for all of them on the days of their arrival. About ten days later the Guardianship Society was asked if it could help the billeting officers in the disposal of certain children presenting special difficulties in behaviour. By the end of the year we had seen and arranged special billets for about 140 children, of whom 102 were still on our books on December 31, 1939. About November the question was raised as to the suitability of "normal" children being billeted in houses where there were also mental defectives. Our reply to this was that we had not been asked to find accommodation for any normal children, all of them being socially defective in one way or another. The behaviour of some was bad, and we had to keep also in mind the possibility that they might upset the certified mentally defective patients whom we had in the same home. We have not placed any evacuated children in any home where there are low-grade cases.

About 80 per cent. of the children we have been asked to deal with suffer from nocturnal enuresis. I soon found that in a considerable proportion of these cases the cause appeared to be bad home training, but the question of nervous origin was also constantly before my mind.

Home Conditions and Educational Standing

By the end of the year I thought it might be useful to get information about the home conditions and the educational standing of each case. Through the kindness of one of the care committee organizers from London I received fairly full reports on the home conditions and the educational attainments, as assessed by the head teachers, of ninety-seven of these children. It may be of interest to give a résumé of the findings. The answers were not complete in every case, but out of ninety-four of those about whom the information was given I found that in eighty-one cases both parents were living together, in three cases the parents were separated, and in five cases only one parent was living. Two of the children were parentless and three of them had one step-parent. Three were illegitimate. Out of sixty-two cases for which returns were received forty-three fathers were in regular work and nineteen were not. Twenty-one out of fifty-eight of the mothers went out to work regularly. Of forty-seven cases about which information was received three of the houses had only one bedroom, eighteen had two, and twenty-six had three or more. Out of seventy-two cases twenty-nine parents occupied the whole house, thirty occupied flats (either in Council buildings or as part of a house), twelve were reported as living in tenements, and one lived in a small cottage of two rooms. I also inquired with regard to the lavatory accommodation, thinking possibly that certain difficulties in access to the lavatory might be a cause of the enuresis. I found, however, that out of the forty-nine cases in which information was received forty had access to indoor lavatories.

It will thus be seen that so far as general conditions under which the children were living are concerned very little fault could be found. There seems to be nothing pointing especially to any housing condition as a cause of enuresis. In two-thirds of the cases the father was in regular work; in about 40 per cent. the mother went out to work. But when one comes to the financial and social position of the families the majority were considerably below the average. Out of seventy-nine children, in nineteen cases the financial position of the parents was stated to be "good," in twenty-two "average," and in thirty-eight "poor." With regard to the social status, out of eighty-eight children this was said to be good in thirty-one cases and poor in fifty-seven.

Educationally ten of the ninety-seven children were said by the head teachers to be above the average, forty to be below average, and forty-seven to be of average ability. If the grading had been in five instead of three categories two-thirds of the children would in all probability have been considered to be below the mean level of intelligence. There seemed to be very little difference between the boys and the girls. If anything, the general average of educational ability of the boys was slightly above that of the girls. The ages of the children suffering from enuresis varied from 5 to 6 (that is, the youngest of the evacuated children) to 13 to 14. Three (two boys and one girl) were over 14. Of the others, eighteen were aged 6, fourteen aged 7, nine aged 8, seventeen aged 9, ten aged 10, eight aged 11, ten aged 12, and three aged 13.

Evacuation and Bed-wetting

With regard to whether the evacuation had had any effect in increasing the number of those giving way to bed-wetting, I have questioned a large number of foster-parents about the parents of the children, and also have received a considerable amount of information from the children themselves. The amount of bed-wetting which has occurred among evacuated children has come as a considerable surprise to many of the teachers. They have told me that a number of these children have been sent to holiday homes, and have been able to stay the full fortnight, although the authorities concerned invariably return a child if he or she is found to be faulty in habits. They say it is very rare for a child to be returned home for this reason, and yet several of these same children have been faulty in habits whilst evacuated. From inquiries which I have made and from the statements of the children I am quite convinced that, in spite of the parents' denials, it is only in rare cases that the habit has started since being evacuated. A large number of children have told me that they did the same thing at home, and the majority add that their parents did not seem to bother about it! This tends to show that it is a social bad habit which can be overcome if there is any strong incentive to be clean. There is little doubt that in a very few cases the bed-wetting has been due to the child's desire to return home, and that it has been deliberate. In fact, there is reason to believe that, exceptionally, it has been suggested from child to child as a means of getting home again.

Prevalence of Bed-wetting in the Community

I have been making some inquiries with regard to the prevalence of bed-wetting in the community. A friend of mine who has had much experience in the Navy in sea-going ships tells me that in his time about 1 per cent. of the boys of 18 who had passed through the training schools and had gone on to sea-going ships suffered from nocturnal enuresis. It is significant that all those boys had had four years in training schools or ships before coming to him. Another friend, who has had a great deal of experience in certain schools, speaks of bed-wetting as a great problem, but does not give any percentages. When spoken to about his son's habits one parent said that the foster-mother need not worry about it, as he himself did it until he was 21.

One cannot help thinking that the habit is much more prevalent than is generally supposed. Up to the beginning of April the Guardianship Society has had roughly 200 enuretics referred to it by billeting officers asking for special billets to be found. This number gives a percentage of nearly 1.5 of the 14,000 children. We know that there are a large number of other similar cases of which we have not been informed officially.

A London care officer, after careful consideration, estimated that the total number would be about 600 or 700 cases. If this estimate is correct it would give a percentage of between 4 and 5 of all the children evacuated into Brighton. It must be borne in mind, however, that the great majority of our children come from parts only of London—Rotherhithe, Bermondsey, Camberwell, Battersea, and Clapham, and a few from Stepney, Wapping, St. George's, and Westminster—and of Croydon. The percentage estimated above would in all probability be much reduced if the whole of the London and Croydon areas were taken into account.

A number of years ago the late Miss Margaret Macdowall, who had had a wide experience in the care and training of low-grade mental defectives, said that she had noticed a distinct difference between the children coming from good-class families and those of a low social status in the reactions to the discomforts of their wetness. The former were much more restless than the latter under these discomforts.

In dealing with these evacuees the fact that they seem to be quite comfortable and happy even though they are lying in sopping beds has been very noticeable. Equally noticeable has been the absence of any sense of shame in a large proportion of them. By no means isolated examples of this are two cases.

In one, a brother and sister aged 5 and 6 slept together; one night the boy got out of bed and advised his sister to do so also. She refused, relieved herself as she lay, and went off to sleep at once. The other is the case of a girl of 7 who during the day would not let down her knickers, but relieved herself through them unless carefully watched. This child is one of four whose father is in regular work and is said to be a decent sort of man. The mother is a careless woman who takes but little interest in her home or the children, and seems to think of nothing but her clothes and appearance and amusing herself. The youngest child, a girl in another billet, was taken home by her mother as the foster-mother complained of her very wet habits. A brother of 9 often messes his trousers and is backward at school; and the oldest girl, aged 11, attends a secondary school, but is said to listen at doors and cause mischief. She is a nice-looking girl with pride in her appearance, and says she has never been faulty in her habits.

The point I wish to make is the absence of any apparent discomfort under conditions which to the majority of people would be very uncomfortable. I know of only one case, though there may be others, in which the increased comfort of a dry bed was appreciated. After a month of dryness a boy of 11 remarked that he would never do it again, as he was so much more comfortable in a dry bed.

Faulty Home Training

Why is the home training faulty? There are three children, aged 11, 8, and 6½, from one family, who are persistently wet at night, and often during the day. The oldest also messes his trousers, but all three are showing some slight improvement. The foster-mother spoke to the parents about it on one of their visits, thinking that a word from them might cause some improvement. The father was ashamed, but the mother said before the children: "Poor little things; they are only babies after all." The parents were nicely dressed and apparently in a fairly good position. A number of further instances could be given to show that the mothers do not seem to mind their children's faulty habits. Some have even been annoyed with the foster-parents for objecting to the extra washing and trouble entailed, and some have taken their children home for that reason only.

When one compares the amount of enuresis among these children with the conditions in good-class families, in which by careful training practically every child has learnt cleanly habits by the age of 2 to 2½ years, it is impossible to avoid the conclusion (and it is supported by my evidence) that there is a deplorably low standard of cleanliness and social behaviour in a considerable number of families living in overcrowded districts in London and Croydon, but not necessarily in overcrowded houses or tenements. As already stated there seems, from the information supplied to us, to be nothing specially pointing to any housing condition as a cause of the enuresis, though this statement is made with some reserve.

This want of cleanliness is undoubtedly associated in many cases with the parents' gross neglect of or lack of interest in their children, either because their mother is at work all day, or because of the desire for drink or amusement on the part of one or both parents; but this is additional evidence of a low standard of social behaviour. In many cases, however, parents in a reasonably good financial position, and apparently interested in and fond of their children, do not seem to expect them to be clean until they are 5 or 6, or older. It is reasonable to suspect that these parents themselves were of faulty habits until a similar age, though no doubt very few would confess it if asked. It seems quite likely that the late acquirement of clean habits by children coming from these overcrowded areas of our large towns is an inherited condition and an expression of a low social standard which has for generations existed there. Lice and pilfering are other expressions of the same low social standard.

Treatment

In general the treatment (apart from medicinal) suggested to the foster-parents has been: no fluids after 5 p.m., regular meals, regular hours; and that the children should be encouraged to be clean rather than that they should be blamed for being wet. Some of the older ones are made to wash their wet or soiled clothing themselves. Some children have been taken to their own doctors, the principal drugs used being, I believe, bromide and belladonna. On the whole the results have been disappointing. A number of the cases have been noted as "improved," but very few indeed have been permanently cured.

Two tendencies have been noticed: first, a relapse is very likely to occur after about a month; and, secondly, in a considerable number of cases as the nocturnal enuresis lessens in frequency it is apt to be replaced by diurnal wetness and dirtiness. It seems as if the effort to please their foster-parents has been too much for them, and they cannot keep it up. My naval friend writes:

I never failed to cure cases of enuresis in the Navy, most of which were in boys who were about 18 years of age. I had them segregated and made to get up every two hours and go to the latrine; then after a period they were called four-hourly, and six- and eight-hourly as they improved. No fluids were allowed after 5 p.m., and their bladders had to be emptied on turning in. The treatment was not looked upon as a punishment, but as a labour-saving device to save them washing their blankets after an accident. This routine I doubt can only be carried out in an institution. In one institution there was a great reduction in the number of cases when my suggestion that the children (5 to 10) should have no fluids after 5 p.m., and their bladders should be emptied before going to bed, was carried out. One boy of 14, treated by several doctors, I cured by giving him a calendar on which he put a × on every date he had an accident. I got him interested in this, and praised good periods, until he was cured. Frequent baths and cleanliness of the genitals are essential; constipation and worms should be considered; circumcision is not often necessary. Belladonna is useful at first, but should be gradually reduced."

In all probability the great majority of enuretics tend to be spontaneously cured with increasing age, though it is possible that it is much more common among adults than is generally known. In both sexes the increased interest in appearance and clothes, and a sense of shame, will provide a strong incentive towards cleanliness. It is possible that the endocrine secretions which come into play about puberty may have some part in curing the condition, but the incentive mentioned above is, I think, of greater importance. In my opinion incentive is the most important factor in effecting a cure. If the child, in view of his parents' attitude, sees no reason why he should be clean, no amount of psycho-analysis or suggestion is likely to improve him. These methods may be very useful with children from good-class families with an inherited high standard of cleanliness, but they are not likely to benefit children coming from families with a low social standard, or only in very exceptional cases.

Summary of Conclusions

Among ninety-seven bed-wetting children evacuated from London and Croydon to Brighton as a war measure, particulars of whose cases have been obtained, there does not appear to be any special connexion between the housing condition (considering the areas from which they come), the presence or absence of regular work of the father, or other general conditions under which the children have lived, and their enuresis. It is suggested that the common factor for practically all, if not all, is a low social standard on the part of the parents, probably inherited.

Two-thirds of the children are below the average in their school attainments.

The number of cases cured by their being placed in good home conditions with foster-parents is very small indeed.

There is a tendency for them to relapse after about a month and for the nocturnal to be replaced by diurnal incontinence.

Incontinence has been found to be present in evacuated children of all ages from the youngest to the oldest.

EFFORT SYNDROME

The Committee appointed under the Chairmanship of Lord Horder to advise the Minister of Labour and National Service on questions concerning the medical examination of recruits for the Armed Forces has submitted recommendations, which the Minister has accepted, on the methods of detecting "effort syndrome" and diseases of the heart and arteries.

The Committee's recommendations take the form of amendments to, and amplifications of, the existing instructions for the guidance of medical boards. "Effort syndrome" is defined as a condition in which the characteristic symptoms are nervousness, a feeling of exhaustion, left mammary discomfort, palpitation, giddiness, and dyspnoea on exertion. The Committee states that many men break down during training or on active service with this set of symptoms. The great majority of these men are "neuropaths"; in a small group these symptoms are attributable to chronic or temporary toxaemia. The condition is rarely an expression of any affection of the heart. A board may be able to foretell that certain recruits, by their appearance and demeanour, and by the evidence of nervous instability which is disclosed by their history or on physical examination, are likely to break down in this way. Habitual avoidance of exertion in recreation is particularly suggestive. The result of an exercise-tolerance test will afford little guidance in detecting potential sufferers from this syndrome, though it may be of considerable value in gauging the degree of emotional disturbance of men in whom the characteristic symptoms are already manifest.

Exercise Tolerance Test

The following revised form of exercise tolerance test is prescribed for the use of boards:

1. The pulse rate is taken for fifteen seconds with the man standing.
2. The man places one foot on a chair at least fifteen inches in height, the other foot on the floor. He then raises himself until both feet are on the chair and the body is upright, then lowers himself until one foot is on the floor. This is repeated twenty times in sixty seconds. The man may use the back of the chair to steady himself when getting on and off the chair.
3. The pulse rate is then taken for fifteen seconds.
4. The man stands still, and forty-five seconds later—that is, one minute after the completion of the exercise—the pulse is taken for fifteen seconds (by which time the rate should be the same as, or lower than, the original rate), and the persistence of any dyspnoea or distress noted.

The data thus ascertained are (i) the rise of pulse rate produced by the exercise, (ii) the degree of return to the constant standing pulse rate, (iii) the persistence of any dyspnoea, and (iv) any other signs of distress. If the man's original pulse rate is regained in sixty seconds, and there is no residual dyspnoea or distress, he may be regarded as possessing good exercise tolerance. If the response is unsatisfactory, the cause may lie in nervous instability or in some cardiovascular defect, and must be investigated by the appropriate examinations, to which the test must be considered as an adjunct. The test does not in itself afford conclusive evidence of these conditions or of a man's unfitness for Grade I; moreover, experience has shown that the response to this test may be rendered misleading in an otherwise healthy man by temporary toxaemia—for example, the common cold—or by temporary lack of fitness following prolonged sedentary work or other causes.

Examination of Cardiovascular System

The Committee, in addition to dealing with the effort syndrome and the exercise tolerance test, has drawn up the following instructions on the examination of the heart and diseases of the heart and arteries:

In all cases the heart should be examined while the man is standing and also while he is lying on the left side; otherwise some cardiac murmurs are difficult to detect. Cardiac murmurs should also be listened for on both sides of the sternum, and while the breath is held by the man in full expiration. Any man should be classed Grade IV whose heart shows definite signs of enlargement, of mitral or aortic disease, or of congenital heart disease, even though the lesion is well compensated and the man gives a fair response to the exercise tolerance test.

The following points should be noted:

1. *A systolic murmur heard at the apex* cannot be accepted in itself as evidence of structural disease of the heart, but when it is present a high grade of exercise tolerance should be required and care should be taken to exclude enlargement and mitral or aortic disease. A history of acute rheumatism or of dyspnoea on exertion, or the characters of the murmur, may help in the diagnosis. If the systolic bruit is slight and is the only abnormal sign the man may be accepted as Grade I provided he has good exercise tolerance.

2. *A systolic murmur heard at the base* is common in health, and when loudest in the pulmonary area may be disregarded unless associated with other signs of congenital heart disease. If loudest in the aortic area, transmitted upwards, and accompanied by a thrill, it indicates aortic stenosis.

3. *Enlargement of the Heart.*—If the cardiac impulse is clearly felt beyond the mid-clavicular line the heart is enlarged provided the displacement is not due to scoliosis (even slight) or to pulmonary disease. If cardiac enlargement is present, aortic or mitral disease is the most frequent cause. Less common causes are hypertension and congenital heart disease.

4. *Irregularities of the Heart-beat.*—Abnormalities in heart rhythm (cardiac arrhythmia, etc.) are not necessarily evidence of organic disease. Before grading, a thorough examination of the man's previous history—for example, his occupation, athletic habit, etc.—must be undertaken and the response to the exercise tolerance test carefully observed.

5. *Tachycardia* is most often an expression of nervousness. A rapid pulse, especially in youths, may be due to the excitement of the examination. Hyperthyroidism is sometimes the cause, and signs of it should be sought. Paroxysmal tachycardia is a rare condition, but definite evidence of it would require low grading. The possibility that a man has taken drugs should be kept in mind. In cases of cardiac arrhythmia and tachycardia of doubtful nature the opinion of a consultant should be obtained.

6. *Hypertension.*—The blood pressure should be taken in the case of all men over 40, or in any case of unexplained cardiac enlargement, or when arteriosclerosis is suspected. A man with a diastolic reading of between 90 and 100 millimetres (as estimated when the pulse sound disappears) should not be placed higher than Grade III. If the diastolic reading is 100 millimetres or over the man must be placed in Grade IV.

In submitting their recommendations to the Minister the committee acknowledges the assistance given to them by the Cardiac Society of Great Britain and Ireland, by Sir Thomas Lewis, and by Dr. Paul Wood, cardiologist at the London County Council Mill Hill Emergency Hospital.

So great has been the demand for the Industrial Welfare Society's booklet *Canteens in Industry* that a third edition has now been published. This appears at an opportune moment when the provision of communal feeding facilities has been brought to the fore by the work of the new Factory and Welfare Advisory Board of the Ministry of Labour. Special attention has been given to the problems raised by rationing, by the need to provide meals for both day and night shifts, and by the difficulties of giving quick service of hot meals and refreshments in very large and scattered plants. Copies of the booklet may be obtained from the Secretary of the Society, 14, Hobart Place, S.W.1, price 1s., or 1s. 2d. post free.

Reports of Societies

HYSTERICAL CONTRACTURES FOLLOWING WAR INJURIES

At a special meeting of the Section of Surgery of the Royal Society of Medicine on July 30, with Mr. ZACHARY COPE in the chair, an address was given by Sir ARTHUR HURST on "Hysterical Contractures following War Injuries."

Sir Arthur Hurst said that in civil life contractures following injuries were comparatively rare, but after war injuries they were frequent. He had wanted to address the Section on this subject because he thought there was some danger of the lessons learned in 1914–18 being forgotten. The nature of these contractures was much under discussion during the whole of the last war, but only towards the end did it become almost universally recognized that they were generally hysterical and with appropriate treatment could be cured quickly.

Fixation of Posture

The most common contracture occurred after injury of any type to the soft parts. Sometimes it followed not an actual wound but a twist or sprain. During the last war after amputation of hammer-toe or removal of semilunar cartilage the limb was sometimes found to be completely stiff, but afterwards the fixation was revealed as hysterical and amenable to psychotherapy. The postures which might develop were of great variety. The commonest of all contractures were those which developed in the hand. There were two main varieties: (1) with the fingers in extension and stiffened, and (2) with the hand tightly flexed. He recalled one patient whose hand was so contracted for two and a half years, and when at the end of that time he was cured at a single sitting and his hand opened, the nails had grown deeply into the palm and made three holes which took quite a time to fill up. The wrist might be fixed, though this did not happen frequently; fixation of the elbow was often seen; and sometimes the shoulder was fixed with the arm held tightly to the side. In a number of cases the toes were involved, the patient walking on the ball of the foot. The knee and hip were also often fixed. Immediately after the injury the patient adopted the position which was most comfortable, and that position might be maintained and develop into a contraction. In some cases the limb was put into a splint, plaster, or bandage, and it remained in the first position in which it was placed by the surgeon, fixation being maintained after the removal of the appliance. The limb was fixed because the patient had lost the idea of movement. These conditions could be prevented by modern treatment, and it was a general instruction now that when dressings were removed the patient should be put through complete movement of the part affected. If he was taught to move at an early stage contractures would not develop. Contractures were most likely to occur when the patient was sent to the physiotherapy department. He believed that many of these cases would not have developed at all had it not been for the treatment they received.

Babinski, one of the greatest of French neurologists, came to the conclusion that the contractures were reflex and therefore organic in origin, and not hysterical. What led to his mistake was the remarkable trophic changes which took place in patients with rather deficient circulation following disuse of a part. Changes in the skin were particularly noticed, the skin becoming wrinkled, blue, thin, and shiny, the finger nails developing badly, becoming grey and lustreless, grooved and brittle; the bones showed abnormal translucency. All these changes, simulating the trophic change following nerve injury, were simply the result of disuse and deficient circulation.

Treatment

In the early days (Sir Arthur Hurst continued) he and his colleagues used a certain amount of suggestion and occasionally hypnotism, but later they gave up both and found simpler methods of psychotherapy of more value. The patients concerned were not commonly hysterical and had never had shell shock; "shell shock" patients were quite a distinct group. The simplest form of psychotherapy followed by persuasion and re-education was all that was necessary, and in the ideal case (which apeared every now and then) cure was effected without so much as touching the patient, by merely telling him what to do. In most cases, however, a certain amount of manipulation was required. At Seale Hayne in Devonshire in the last war he had ten medical officers, only one of whom had any previous experience of psychotherapy or of neurology. They were junior officers who had gone straight into the Army, yet during the last nine months at Seale Hayne any one of them would have been annoyed with himself if he had not cured each case at a single sitting, which might last five minutes or two or three hours. No massage or electricity was needed; simply a very easy form of psychotherapy, beginning with an explanation to the patient how the contracture developed, that it was necessary to rest the limb after injury, but that when the splint or bandage was taken away the limb should be moved. The patient was taught to "flop," and then, after a little manipulation, to relax again, and presently he was able to open his hands a little, and after having had it done for him two or three times he began to be able to do it himself. Thus through a combination of active and passive movements normal movement of the limb or member was restored.

A few of these cases had previously been regarded as surgical, and actual operations had been done, but the contracture persisted. In a number in which the knee was involved an anaesthetic was given and what appeared to be adhesions were broken down. Tears had actually been heard. He had never been able to understand how that happened, except that around the joint the fibrous tissue contracted and some coagulation change took place in the protoplasm so that the fibrous tissue became fixed. It was possible to break down what seemed to be adhesions, but the joint became fixed again. Just as muscle tissue could relax, so could fibrous tissue, and normal movement take place.

Physiotherapy out of Place

Dr. J. B. MENNELL said that as President of the Section of Physical Medicine he had been asked that that might be a joint meeting, but he had refused the request. His refusal was based upon the consideration that if there was one subject more than another with which the physiotherapist should not interfere it was these contractures. It was true that physical medicine had been used in treating them—in his view, entirely wrongly. It had had a measure of success, but it had included an element of torture. Sometimes surgeons asked that a team of people might be supplied who would stand by and unravel by force the contractures that had occurred. Such force was sometimes exercised, and later, when the contracture recurred, it was corrected again by the same means, and this somewhat barbarous method of treatment might be carried on for five, six, or even ten hours continuously. To his mind it was an abuse of treatment, and was calculated to make the patient steadily worse. Not only did contractures come under this heading but also the paralyses. Constantly during the last war one met patients who came along with organic nerve lesions and yet with intense wasting and disuse from the paralytic side. He always followed the rule that when these patients had been under treatment elsewhere for any length of time they were not to be admitted straight away. Anything else he took on almost at once, and employed extra staff if necessary, but these particular patients he always told to wait, and after perhaps a fortnight or longer he found a vacancy for them. The number of patients who recovered or showed marked signs of recovery simply as a result of leaving off physical treatment was astonishing. He desired to draw the attention of his fellow physiotherapists to the futility of treating these patients by physical methods; indeed, it was worse than futile, for the result was to fix the disability in the patient's mind, and it was a much less easy matter to get it out.

"Results on the Spot"

Colonel HENRY YELLOWLEES said that in the war of 1914–18 he spent three years in France as a psychiatrist trying to do something with these cases, and some of the methods which

he suggested were used in a very large number of hospitals here and over-seas, though not, he imagined, at Seale Hayne. Sir Arthur Hurst had pointed out that Babinski was mistaken in some of his views on hysterical contractures; Babinski was not the only neurologist to make mistakes. The term "ordinary psychotherapy" had been used; he would have thought that the term implied psychopathology, but Sir Arthur Hurst had made one remark only about the psychopathology of these cases—namely, that the patient lost the idea of movement. That might be satisfying to the surgeon, to the expert in physical medicine, and even to the neurologist, but it was not satisfying to those who knew anything about hysteria, and it would have been better if Sir Arthur Hurst had come right down on one side of the fence and told them what he thought was wrong with these patients with whom he and his colleagues had had such marvellous results. He had been interested to hear that only one in ten of his team had any experience of psychological medicine or even of neurology, and Sir Arthur had added with charming naïveté that they were all equally expert. He could quite believe it. The only thing that would explain their success at all was that there must be precious little in psychotherapy. One could not be expert in anything if, to begin with, only one in ten of the team knew anything about the subject, and then at the end of a few months all had become equally "expert." Sir Arthur Hurst had then given an explanation of "ordinary psychotherapy." He had heard it before. It was not quite clear whether he relied on suggestion or persuasion; probably Sir Arthur himself was not clear either. He had told them certain things which were quite correct, but he had not told them on what they were based. He himself had recently returned from the B.E.F., where he was, under a great handicap, in charge of all the psychological and psychiatric work. His handicap was that for the first time he had no organic neurologist to supervise him; he was entirely on his own. He gathered around him, however, a collection of men who "did not possess the advantage of having had no experience." Every one of them was trained to do several things, and they got results. They were trained to know the difference between persuasion and suggestion, between a disease process and a symptom, to have a background of psychological medicine, and to do their work on the spot where the injuries had taken place, and that was, after all, an advantage.

Sir ARTHUR HURST replied that Colonel Yellowlees must bear in mind that in 1914–18 psychotherapy had not developed to the extent it had now. It was then impossible to get any large group of trained psychotherapists or people who knew a great deal about psychology. After all, the important thing was to get results, and if his ten psychotherapists, ignorant as they were of modern psychotherapy, were able to cure all their patients—he was talking now about these hysterical cases, not anxiety neurosis—and the patients remained well, as it was known they did, he thought that was all that was required. He believed also that if his ten medical officers ranged themselves in order of their success the one who would come last or nearly last was the skilled psychotherapist. This was because he knew too much about psychology. It might have been unscientific, but it worked. His own experience during the last war was that the worst cases of so-called shell-shock which came back to England were those which had been under the care of the psychologists in France, who had carried out experiments in hypnotism, reviving past memories, with disastrous results. He had thought it best to let the amnesias remain; they were protective. When the memory was restored the anxiety increased and the condition was aggravated. It might be that in time they were cured, because, after all, the modern psychotherapist wanted to have his patient in a room by himself two or three times a week for a period of six, nine, or twelve months—a thing impossible under war conditions.

Sir ALFRED WEBB-JOHNSON said that it was all very well for Colonel Yellowlees to talk about treating patients on the spot, but most of the patients at Seale Hayne had grafted a hysterical contraction on the top of an injury which had necessitated their evacuation from the seat of war. The tragedy was that the condition had not been recognized for many months after it came into existence, and yet it was susceptible to cure after a very short time. He was glad that this subject had been brought into prominent discussion at this moment because he had been asked to open 10,000 beds for convalescent soldiers in private houses, each holding perhaps fifty or 100, and one could see terrible possibilities if these men during convalescence were petted and confirmed in a condition which might otherwise be rapidly cured, and naturally the danger would be greater if inexpert unqualified physiotherapists were on the staff of these convalescent homes.

Results of Over-splinting and Disuse

Dr. E. B. STRAUSS said that Sir Arthur Hurst might have stressed even more forcibly the great difference between the majority of these cases of hysterical contracture and the ordinary conversion hysteria. There was a great difference between the psychopathology of the two types of cases, and certainly a great difference in the way they responded to psychotherapy. The average case of conversion hysteria would not clear up in a single sitting, whereas his own experience of similar cases in civilian practice was that hysterical contracture did clear up in a single sitting. Therefore it must be assumed that these simple cases of contracture had a very simple psychopathology behind them. The majority of cases of contracture he had come across in civilian practice had been due to oversplinting and physiotherapy. The hand had literally gone to sleep and forgotten how to wake up. Put in rather more impressive language, he thought there had been a change in what Schilder, a psychotherapist of great eminence, called the "body schema," by which he meant that picture of the body and its functions which was present to the unconscious part of the mind. Owing to over-splinting and disuse the body schema underwent a change, and all that was required to put the condition right was that the body schema should be corrected. In his experience, which was confined to civil practice, the body schema could be changed by the simple methods of explanation and persuasion. He thought it quite clear that suggestion was very rarely used. Colonel Yellowlees was a little hard on Sir Arthur Hurst when he said that nothing had been stated about psychopathology. Something had been stated, but it was implicit rather than explicit.

Colonel YELLOWLEES asked whether Sir Arthur Hurst was of opinion that in the former war cases with such phenomena as deaf-mutism and conversion hysteria were cured at all in France in one sitting.

Sir ARTHUR HURST replied that they were constantly cured. His former assistant, Major Jackson, now senior physician of one of the Liverpool hospitals, was in charge of the first casualty clearing station which was put aside in France near to the front to deal with these cases, and he cured them nearly all straight away as they came in and sent them back to the front. Later on other casualty clearing stations were formed in which similar results were obtained, but the cases of which he had spoken were in a different category from these. They did not come in within twenty-four hours, they came in after perhaps eighteen months in different hospitals, where they had got worse and worse, becoming at last completely demoralized, and although it was possible to get rid of their symptoms they were fit only to be relieved of Army service and sent back to civilian life.

Muscular Rigidity Uninfluenced by Anaesthesia

Mr. ZACHARY COPE said that Sir Arthur Hurst had mentioned that the joints in some cases could not be moved even under a general anaesthetic. Surely under deep anaesthesia a joint which was not absolutely ankylosed would be movable. While muscular tissue could contract and relax, fibrous tissue could swell and shorten after a time, but relaxation was something which he had never associated with the latter, and he could not agree that "fibrous tissue relaxation" was a proper term to use.

Sir ARTHUR HURST said that it was extremely difficult to explain these cases. He remembered seeing one soldier in Bath with knees rigidly extended. He had had many spa treatments without improvement. No relaxation was to be obtained. He was taken to Seale Hayne and given a general anaesthetic, but still he did not relax. Afterwards psychotherapy was tried and gradually relaxation was obtained.

Dr. J. F. VENABLES mentioned a case of a woman with a stiff knee which did not relax under an anaesthetic. No

changes were noticeable under *x* rays and there were no signs of disease.

Dr. R. L. WORRALL said that from the work of Kinnier Wilson, who borrowed largely from Pavlov, it was possible to say that what was wrong with these patients was a localized cortical inhibition. The therapist had simply to give persuasion or explanation, and the conscious control of the patient did the rest. If conscious control was a cortical function, as most psychologists admitted, it could be seen that what was wrong was inhibition in some localized area of the cortex. Apparently what happened in anaesthesia was a general cortical inhibition, and obviously such an inhibition was not going to do away with other small localized ones. The reason why persuasion could bring it about was that the will could affect the cortex and change its dynamic. That was why Sir Arthur Hurst succeeded where the physiotherapist failed. He asked whether Sir Arthur Hurst had noticed any disturbance of sensation in the affected areas, and whether he had seen any contraction of the muscles of the face or of respiration.

Sir ARTHUR HURST replied that he had never looked for sensory changes because he was quite sure that if he did so he would find them. It was almost impossible to examine a patient with contraction without producing hysterical anaesthesia. So far as the face was concerned, he remembered seeing only one case of facial spasm, and that was in quite a different type of patient, following not an injury but dreams and night terrors associated with trench experiences. The spasm disappeared with the dreams.

Colonel H. G. GARLAND said that he had seen hysteria in the Army, but only one case of hysterical contracture. In this case the individual was not a hysterical subject at all, and the psychopathology was not obvious. Sir Arthur Hurst had properly emphasized the importance of diagnosis, not only of hysterical contractures but of all hysterical disorders. His own experience was that the vast majority of hysterical conditions arising thus far had been incorrectly diagnosed—they had been given a label as organic.

Mr. LESLIE NORBURY said that he had had several cases of functional hysterical contraction in women after breast operations. Some people put this down to the stretching of the arms in an abnormal position and damage to the brachial plexus. In the case of one woman he could not do anything to the arm, though electrical reactions were normal. At the end of two months he gave a general anaesthetic, and even under anaesthesia had great difficulty in moving the arm, and at any attempt to do so very startling noises were heard in the shoulder region. The patient was treated by physical methods and at the end of six months certain arm movements were obtained, and she now had a useful arm. Since then he had always made a practice of instructing nurses, immediately the patient came round after the anaesthetic, to get the patient to make arm movements.

Sir ARTHUR HURST, in reply to a further question, said that in the patients of whom he had spoken the electrical reactions had never been tested, but Babinski spoke in his book of the muscles of these contractures showing an abnormally slow reaction to galvanism.

At the last quarterly court of the directors of the Society for Relief of Widows and Orphans of Medical Men, with Mr. V. Warren Low, president, in the chair, two new members were elected and the deaths of three reported. The death of one of the widows in receipt of grants was also reported. She came on the funds in 1935 and had received in grants £337 10s.; her late husband had paid £52 10s. in subscriptions. £2,462 10s. was voted for the payment of the half-yearly grants to the sixty-two widows and three orphans at present on the books of the society. Relief is granted only to the widows and orphans of deceased members. A widow of a member who is left with a yearly income of £125 or under is eligible to receive relief. Membership is open to any registered practitioner who at the time of his election is resident within a twenty-mile radius of Charing Cross. Full particulars and terms of subscription may be obtained from the secretary at 11, Chandos Street, Cavendish Square, W.1.

Correspondence

Treatment of Air Raid Casualties in Practice

SIR,—Many of us are very thankful to those who take the trouble to record their experiences in dealing with air raid casualties. We who have yet to receive our "aerial baptism" are anxious to glean help from all such practical communications. It is a welcome change from the bureaucratic babblings of the unbombed theorists.

Referring to the paper by Messrs. A. R. Hodgson and G. K. McKee (August 3, p. 147) one would be grateful for information on the following points: Had their cases passed through a first-aid post or had first-aid attention? In the case of the casualties who were obviously too shocked for immediate operation did the surgeon accept the diagnosis as given on the M.P.C. 46 and leave the patient to have his anti-shock treatment, or were the injuries uncovered and re-dressed prior to operation? At what stage were the patients tackled by the clerk whose job it was to "fill up the forms," and was he allowed to interrogate the patients irrespective of their degree of shock or acute discomfort? Were the patient's clothes removed before transfer from ward to theatre, or in the theatre while under anaesthesia? What was the average time from the receipt of injury until the patient arrived in theatre? Is it their opinion that the surgeon who proposes to operate is the one who should go round his unit personally and select the cases and their order for operation?—I am, etc.,

Aug. 5. E.M.S.

First-aid Lectures

SIR,—Is not there a tendency to teach the members of first-aid parties too much? Does it matter whether they say femur or thigh bone provided that they can fix it up properly so that if fractured it does not get made worse during transport? Is it wise to strip and examine any or every accident patient and make an exact diagnosis on the roadside? They must be examined again on arrival at hospital and there is the risk of shock, chill, etc. Are not many questions put by examiners absurd? In a first-aid examination my wife was asked, "Why is the normal temperature of the human body 98.6° F.?" Another lady was asked how she would select a site for a camp and "How much water does the barrel of a Mark VI ambulance wagon contain?" Some years ago (1912) at a local display the wounded were attended on the battlefield by women (V.A.D.s) and then conveyed to a dressing station by the men of a Territorial Field Ambulance and handed over to the V.A.D. for further treatment. On one occasion in a competition I saw a detachment lose marks because they had an "Admission and Discharge Book." They were told that no one could keep records in wartime.

No one can have a greater respect and admiration for the personnel of the British Red Cross than I have (I was one of the original members of the Volunteer Medical Staff Corps which was formed in 1885 *circa* and have been connected with the movement ever since). What I think is needed is an examination for examiners. There is a vast difference in what should or could be done on the battlefield or during an air raid in the open street and what can be done in hospital. I do not think that this is sufficiently appreciated by a great many civil practitioners. In case I may be thought to be having "a dig" at some of my colleagues I sign myself as

A COUNTY MEDICAL OFFICER, B.R.C.S.,

July 25. Lieut.-Col. (late R.A.M.C.T.F.).

Voluntary Hospitals Emergency Bed Service

SIR,—At the outbreak of war this service was closed, as the whole of the staff were seconded to the Ministry of Health for duties in connexion with the Emergency Hospital Service. When the service was restarted an endeavour was made to inform all London doctors of the fact, but owing to the rapid change of personnel which is now going on increasing evidence is accumulating that there are numbers of doctors who are unaware of the facilities offered by the service.

We therefore wish to inform any doctors new to London that the service can obtain immediate admission for any urgent or acute case on their behalf if they will ring Metropolitan 8781 and state their wishes.—I am, etc.,

10, Old Jewry, London, E.C.2, July 30. A. M. H. GRAY.

The Walking Plaster Cast

SIR,—May I make one or two comments on Major E. L. Farquharson's excellent note on the walking plaster cast (July 20, p. 87). First, the cross-pieces of the Böhler iron need not be expensive—one rivet and a bit of stout tin each end and it is done in less than five minutes. Secondly, I think his irons are too heavy; ½ in. by ¼ in. black mild steel does very well for anyone up to 12 st. if the base of the iron is protected from wear on the ground. A piece of the outer cover of a bicycle tyre is one of the best protectives, and the patients like it. For myself I make my irons a little longer than shown in the illustration, and fasten them with one bandage at the top just below garter level and one at the ankle, twisting the bandage round the iron on each side at every turn of this lower fastening.

The fitting of the iron to the individual leg, preferably with two shifting spanners, adds greatly to the security of the fastening and makes for lightness.—I am, etc.,

King's Langley, July 28. REGINALD FISHER, M.B., B.Ch.

Treatment of Inguinal Hernia in Adults

SIR,—It has been observed that few surgeons can resist the urge to introduce technical details of their own devising into whatever standard method they employ in the operation for inguinal hernia, though they may not feel that their modifications are important enough to justify them in claiming that they have discovered a new and original operation. Mr. John F. O'Connor (July 27, p. 113) describes his modification of Andrews's operation, and his results are so convincing that personally I feel that if I were not so enamoured of my own method I would be inclined to follow his lead. There is one technical detail, however, which I suggest might with advantage be incorporated in Mr. O'Connor's operation or any other operation in which it is necessary to reinforce the canal, whether it is the anterior or the posterior wall which is strengthened.

There is one principle of surgery that it is of the utmost importance to observe in all plastic operations—namely, that tissues united by suture must so far as possible be relieved of all tension during the period in which union is taking place. I suggest that this principle is, if not ignored, at least not particularly observed in all the standard operations for inguinal hernia (except those in which a fascial implant is employed). The inguinal ligament is a strong, almost unyielding structure; to draw the conjoined tendon and its attached muscle fibres down to the ligament with sutures involves tension, though the tension on each stitch may be lessened by increasing the number of stitches. When the muscle contracts the tension is increased, and hence union is likely to be imperfect. That tension does exist can readily be observed at operation; when the tendon is sutured to the ligament some separation of the fibres of the ligament can often be observed when the sutures are tied.

For many years, when operating on cases where reinforcement of the canal appears to be necessary, I have adopted a method which seems to me to overcome the difficulty of tension. The first step in the operation, after the exposure of the fascia of the external oblique, is to expose clearly the lower edge of the inguinal ligament along the greater part of its length. The ligament is then separated by dissection from its fibrous attachment to the sheath of the pectineus muscle. The ligament then becomes comparatively lax and mobile in an upward direction. The external oblique fascia is then divided about three-quarters of an inch above the line of the ligament and the sac isolated and dealt with in the usual manner. The conjoined tendon and attached muscle are then sutured to the ligament in the following manner. The needle, threaded with No. 1 chromic catgut or silk, is passed through the muscle from without inwards and then passed under the ligament without penetrating any of its fibres, care being taken not to injure the underlying femoral vein. The needle is unthreaded and rethreaded on the other end of the suture, and is then passed through the lower leaf of the external oblique about one-quarter of an inch above the part of the suture which is lying under the ligament. Four or five such sutures are passed, the most external being close to the internal ring, and they are then tied. The result is that, instead of the tendon being drawn to the ligament, the mobilized ligament is drawn upwards, with a minimum of tension, to the tendon. The ligament is now concave downwards and the knots are all outside the canal. The tendon and muscle are lying snugly and broadly applied, without tension, to the gutter-like lower edge of Poupart's ligament.—I am, etc.,

Leicester, July 30. T. C. CLARE.

SIR,—In the article by Mr. John F. O'Connor on the treatment of inguinal hernia in adults (July 27, p. 113) he mentions a procedure in the treatment of direct hernia. This includes turning down a flap of fascia from the anterior sheath of the rectus abdominis and suturing it to the reflected inguinal ligament. This procedure I have found very useful, especially in those cases where the conjoined tendon is ill defined. The conjoined tendon in so many of these herniae (especially the recurrent herniae after previous operations) does often consist of splayed-out attenuated fibres which are ill defined. In these cases I have found it impossible to attempt to do a Gallie operation, as it is difficult to decide where to get attachments for the graft. Consequently, in some cases where I have started with the intention of performing a Gallie operation I have been obliged to resort to turning down a flap and suturing the same to the upturned edge of the inguinal ligament. The results have been very satisfactory, and this is not to be wondered at. In this operation one is suturing like tissue to like tissue—namely, fascia to fascia—and so it is to be expected that firm union should take place.

It has frequently occurred to me, in doing the orthodox Bassini operation, how the conjoined tendon, the transversalis, and internal oblique muscles remain permanently attached to the inguinal ligament. Are post-operative herniae the result of this non-union of muscle to ligament?

The second subject of interest in this article is the question of advising the patient not to perform any strenuous work for three months after his operation. This advice is sound and has been offered to all my patients in peacetime. But in wartime it is a very difficult proposition to insist on three months' leave for a man who is on active service. We are now seeing a very large number of herniae in recent recruits. This may be the result of men's being suddenly given unhabitual exercise. Alternatively, it may be that these men did not realize that they were the possessors of herniae, which were disclosed when they had their medical examinations. Under present war conditions, in operating on these herniae I practise keeping these soldiers in bed for fully three weeks, and then allow them three weeks' convalescence leave. This gives them a period of six weeks entirely from the day of their operation, in order to allow sound union to occur; but is this enough? Perhaps a definite ruling should be made in these cases.—I am, etc.,

July 30. MAURICE LEE, F.R.C.S.

Personal Environment and Enuresis

SIR,—I have read with interest Dr. L. G. Housden's letter (July 27, p. 133) and wish that I could endorse his findings. I have had considerable experience with this type of case, and am forced to admit that while some children respond to the form of treatment which he has outlined the majority have proved much more complex problems. Since the outbreak of war I have had an opportunity of studying psychological problems in evacuee children; in each of these cases there has obviously been a change of environment. Out of seventeen children referred to the Haymeads Child Guidance Clinic on account of enuresis all are now definitely known to have been bed-wetters before evacuation, while in fourteen of these cases the billet mother did not know of the condition beforehand and only found out by experience on the first and subsequent nights. The majority of these foster-parents must be considered reasonably stable, as they have been able to bring up their own children successfully. On the other hand, some children who have been admitted to the hospital wards

for observation or to hostels for enuretics, and have been well aware of the reason for their admission, have been dry during their stay, without any undue precautions being taken such as excessive lifting, and have often relapsed when rebilleted as cured in carefully selected foster homes. It would be interesting to hear the views of other people who have had experience in this field.—I am, etc.,

Bishop's Stortford, Aug. 1. D. N. HARDCASTLE.

SIR,—I read with interest Dr. L. G. Housden's letter on personal environment and enuresis (July 27, p. 133). Dr. Housden evidently does not know that children who suffer from enuresis are disqualified from evacuation over-seas, and therefore his fear that any child will embark from England labelled "bed-wetter" is unfounded. Dr. Housden also states that bed-wetting can always be cured by placing the child among new people; yet, in the first evacuation in September, 1939, there was no time for bed-wetters to be labelled as such; they went to the reception areas with unblemished reputations; that they were far from dry is common knowledge.

In my experience bed-wetting is infrequently cured overnight; whatever may have been its origins it is a habit, and as such needs the co-operation of the child before improvement will occur. Reassurance, combined with encouragement and promises of suitable rewards to be given after a series of dry nights, are the best means of securing the child's interest and inducing him to try with all his might and main to live a drier life. If the parent or nurse cannot be persuaded to adopt the correct attitude, then the child must be removed, but that this in itself is not enough to cure the habit of bed-wetting is shown by the results of the first evacuation.—I am, etc.,

Erith, July 29. CÉCILE ASHER, M.D., M.R.C.P., D.C.H.

Masturbation and Night Frequency

SIR,—The natural human being living the so-called "savage" existence attains sexual maturity at puberty and is expected at once to fulfil the biological functions of sex. In certain tribes a girl who fails to marry and to conceive before her second monthly period is treated with scorn. Male masturbation is regarded as treason to the race, and in the Zulu tribe under the great Chaka was punished with death. But the unnatural habits of life of civilized man impose an obstacle to normal sexual gratification, and for a period of many years the young adult is unable to obtain any regular satisfaction of his urgent sexual requirements and is compelled to have recourse to self-relief. Masturbation is thus the normal reaction of the normal adult to an abnormal environment. The incidence of the practice, both occasional and habitual, is generally accepted as universal. One authority has stated that 99% of his patients admit to having masturbated at some time, the remaining 1% being liars.

The only ill effects of masturbation, when not carried to excess, is a "one-day neurasthenia" (asthenia or loss of strength of the nerves) or temporary fatigue neurosis, little different from that following normal intercourse. More prolonged indulgence sets up a chronic hyperaemia of the deep urethra, due to the failure of detumescence characteristic of solitary sexual exercise. This mild congestive urethritis is the commonest cause of night frequency of urine in otherwise healthy young men; it is also a predisposing cause of prostatic enlargement of old age, a disease which is most in evidence in those countries where normal sex life in youth is least obtainable.

Turning now to the very interesting problem set by Dr. G. H. Bell and Prof. R. J. S. McDowall (July 27, p. 117) on the association between late tea-drinking, change of environment, and night frequency, as compared with a series of controls in which late tea-drinking without change of environment was not accompanied by night frequency, it seems clear that the change of environment and not the tea is the responsible factor. In student days a young man is dependent very largely upon his family and his home for social contacts, whereby his natural virility may be sublimated. As a stranger in a strange city, a student living in "digs" who has neither the money nor the opportunity to entertain or attend social functions will find himself cut off from feminine society, which is such an indispensable tonic to youth. But the endocrine system continues to function, and sex starvation deprived of its safety-valve of sublimation compels the natural reaction of a natural adult to a highly unnatural environment. This, I think, will be found to be the cause of the night frequency observed in evacuated students as contrasted with local students. The influence of late tea-drinking is probably more apparent or indirect than real. Caffeine taken at 9 p.m. will cause diuresis for the next two hours, but not after midnight, when the late tea-drinker retires. A tea-drinker evacuated to Glasgow has probably been drinking tea while working in London, and so there is no change of habit. If Glasgow tea contains more caffeine than London tea (a most unlikely suggestion) it would affect Glasgow men equally with Londoners, and the incidence of night frequency would diminish as tolerance became established, rather than progressively increase, as apparently actually happened. The solution, I think, lies in the consideration that students drink tea late at night only when they are working for examinations, when social contacts are most eschewed and nervous tension (due to over-smoking and under-exercise) is at its highest. It is just such an unnatural environment which most predisposes to absolute sex starvation, failure of sublimation, masturbation, chronic urethritis, and night frequency. It would be helpful to know whether there is any association between night frequency and the use of benzedrine.

I sincerely hope that this letter will cause no offence to those who have taken part in this interesting social investigation. It is written as a serious contribution to a very real problem of student days, the solution of which is still obstructed by the conspiracy of silence on the subject. The veil of secrecy about sexual topics has been vigorously torn down by the popular press, but it still obscures where light is most looked for—namely, in the pages of the medical journals.—I am, etc.,

Hayle, Cornwall, July 27. D. STANLEY-JONES, B.Sc., F.R.C.S.

First Aid for Burns

SIR,—With reference to Dr. J. L. Aymard's letter on first aid for burns (August 3, p. 167), I have been teaching the albumin treatment of burns for over ten years in the first-aid lectures which I have been giving for the St. John Ambulance Association. This method is used extensively as a home remedy in Eastern Europe, where I saw it over thirty years ago.—I am, etc.,

London, S.E.25, Aug. 5. A. FREITAG, M.R.C.S., L.R.C.P.

Insulin Treatment of Schizophrenia in Wartime

SIR,—It is much to be regretted that the justification of insulin treatment of psychiatric patients in wartime should have been questioned in your *Journal* with so little reference to the underlying facts. If Dr. R. D. Lawrence (July 20, p. 98) was shocked by the psychiatrists' use of insulin, how much more profound must have been his disturbance at finding the *British Medical Journal* demanding Government prohibition on the basis of his letter, which dealt with a therapeutic method of which he professes complete ignorance. Before encouraging a discussion the *Journal* might have been expected to make inquiries as to whether the relatively small amount of insulin and glucose used for the treatment of a few hundred schizophrenics in the course of a year was of the least importance to the country's present economy. We are of the opinion that this is extremely unlikely, and if this is so the whole discussion is futile. This is not the place to enter into the merits of insulin therapy. Very few psychiatrists with practical experience of the treatment have any doubt about its efficacy in early cases; this view can be supported by a wealth of statistical evidence. The cases arising in the Forces are, of course, of recent origin, and we have no doubt that insulin therapy will be the means of returning many of them as "working assets to the country."

To enter into a debate with Dr. Lawrence about their value in our national effort as compared with that of diabetics seems absurd; but an evaluation of this kind seems to be the only basis of your urgent call for Ministerial interference in a purely professional matter.—We are, etc.,

Dumfries, Aug. 3. P. K. MCCOWAN, W. MAYER-GROSS.

Science in War

SIR,—Your leading article on science in war (August 3, p. 158) is very stimulating. What can we do about it? The Nazis, in spite of whatever they pretend, have applied scientific method to destroy their enemies. They have done it thoroughly as regards the baser elements in human nature and are quite capable of using their logical minds to further their own purposes. We despise mere intellectual logic but do apply a human logic, which generally prevails. How can we get our Government to think things out and act on that thinking? We know enough now to enrich life in every way and bring us to victory, including an application of economic method so that a minimum of wholesome life would be available for all.

All the same I doubt whether we are going to persuade our people to let the scientists get "on top." Scientists have too often seen the trees but not the wood. What is wanted to-day "on top" is a band of disinterested men, patriotic to the core, who will know how to use all the knowledge and experience gained and with a proper modern outlook. They would have the backing of the vast majority of our country. Nothing to my mind is so significant to-day as the reception of J. B. Priestley's broadcasts with their sane broad outlook and British common sense.—I am, etc.,

Letchworth, Aug. 5. NORMAN MACFADYEN.

Health and Soil

SIR,—With food production looming so large on our horizon soil fertility is of particular importance. At the present time there appear to be two sharply divided factions—the one placing its faith in replenishment by animal manures, green manuring, or compost, the other relying entirely on chemical artificial manures.

It is stated that the latter method produces quantity at the expense of quality and that it ultimately results in loss of soil fertility. Some of the results of ill-directed chemical manuring in America would seem to bear this out, but there is a fallacy in this argument, for recent work on hydroponics has shown that so far from soil fertility being essential, even the soil itself is unnecessary! Plants and vegetables can be grown, and are being grown commercially, in ashes or water provided that correct amounts of appropriate chemicals are added at the right time. The difficulty is that this chemical feeding must be continuous, which is achieved either by drip-feeding or by repeated soaking of the roots. It seems that it is here that the chemical extremists fail by attempting to apply these methods to land culture, for the drip-feed methods, etc., though easily applied in tank culture, are not practicable over a large acreage of land, either on the score of evenness of distribution or of retention of the chemicals. It is here that the compost users come into their own, as this adds to the soil both moisture-retaining humus and certain chemical constituents. It may therefore be said that in practice for land work some form of humus is essential for moisture retention, but—and it is here that one would plead for a little more elasticity of opinion—chemical manures, if not absolutely essential, are, if used with discretion, of great value in increasing both yield and quality. Chemical additions to organic manures are not essential, because the function of the latter, besides acting as humus, is to provide the crops with the elements and salts they require. There lies the proof that, apart from the moisture-retention question, both schools of thought are supporting the same motion, but from opposite sides.

Plants cannot grow without certain elements—salts and so-called plant hormones or auxins. This has been proved despite our knowledge of the last-named being as yet limited; though hormone A (B indoleacetic acid) is now being used extensively for reproductive purposes. Those on which the "NPK mentality" is based are common knowledge, but recent work has shown that, for example, ethylene chlorohydrin, sodium thiocyanate, borium, and oestrin have a striking effect on plant growth, and that one of them at least may be essential to plant life. Possibly one reason why animal manure is superior to compost is the extra hormone content derived from the animals' urine.

It is said against chemicals that they do no lasting good to the soil and that manures do. Again this is only true as to humus, for organic manures have to be reapplied just as do chemicals. Therefore let us by all means use our compost heaps, for by doing so we avoid waste, provide humus, and ensure a basic supply of chemical foods for the plants; but let us, in addition, add to the soil appropriate quantities of suitable chemicals for the individual vegetable at the correct period of growth. An annual manuring cannot do this, and if it is done most vegetables will show an increase in yield and quality. Thus by combining both principles we shall obtain the best from both worlds, for is it not the simple truth that *both* humus and chemicals—whether "natural" or "artificial" is immaterial—are essential?—I am, etc.,

Wallasey, Aug. 3. GAVIN MILROY, M.D., F.R.C.S.Ed.

The Services

NORWEGIAN CAMPAIGN: ARMY AWARDS

The War Office announces the following Norwegian campaign awards:

In pursuance of powers delegated by the King, the Commander-in-Chief, North-Western Expeditionary Force, conferred the following immediate awards in recognition of distinguished services in the field.

Military Cross

Captain (now Major) William Morgan Evans, R.A.M.C., T.A.

Major Evans was in command of a company of a field ambulance which was detailed to open an advanced dressing station on the Ankenes Peninsula. This served British, French, and Polish troops, all of whom speak highly of the meritorious work done by him in the organization and evacuation of the wounded. He carried on under frequent aerial bombardments, during one of which he successfully evacuated a wrecked French dressing station.

Captain Michael Joseph Kohane, R.A.M.C.

For bravery and devotion to duty in action on April 23. He was attached to a brigade headquarters and had established a central aid post at Tretton. In spite of continuous shelling of this small village he returned many times to evacuate the wounded, and was not content until he had also removed all dressings and medical stores to safety. By this prompt action many wounded were saved from burning.

CASUALTIES IN THE MEDICAL SERVICES

Wounded

Temporary Surgeon Lieut. John Forster Buchan, R.N.V.R. (H.M.S. *Boreas*).
Temporary Surgeon Lieut. Denis Louis Priestley De Courcy, R.N.V.R. (H.M.S. *Wren*).

Missing

Temporary Surgeon Lieut. Dermot Harry Tuthill Duggan, R.N.V.R. (H.M.S. *Ardent*).
Probationary Temporary Surgeon Lieut. Herbert John Stammers, R.N.V.R. (H.M.S. *Acasta*).

Prisoner of War

Captain Geoffrey Say Trower, R.A.M.C.

Universities and Colleges

UNIVERSITY OF LONDON

The degree of Ph.D. in the Faculty of Medicine (non-clinical) was awarded to W. P. Rogers (London School of Hygiene and Tropical Medicine) on July 23.

UNIVERSITY OF MANCHESTER

The Vice-Chancellor of the University of Manchester has conferred (*in absentia*) the honorary degree of LL.D. on the Right Hon. Walter Elliot, M.P., F.R.S., F.R.C.P.

CONJOINT BOARD IN SCOTLAND

The following candidates, having passed the final examinations, have been granted the diploma of L.R.C.P.Ed., L.R.C.S.Ed., L.R.F.P. & S.Glasg.:

S. P. Abraham, I. Abramson, A. Baboolal, A. Beck, A. R. Bleich, A. C. Buchan, M. F. J. Clarke, T. M. Cole, W. C. Crawford, J. Duckman, H. A. Finkelstein, J. Frankenthal, R. L. Friedman, H. Gikow, A. Greenberg, M. Harrison, S. A. Heiligman, D. Hirschl, F. G. Hunter, B. Iskowitz, E. M. Israels, A. Jacobs, G. Kanner, S. Katz, W. H. L. La Frenais, W. K. Laing, W. E. Lawes, T. Lawrie, V. L. Lucas, J. N. W. McCagie, F. W. Mahoney, I. H. Mauss, A. H. El Menoufy, J. Miller, C. M. Newman, S. Olansky, R. Ormiston, J. O'Rorke, A. P. Osher, S. H. Pomerantz, B. S. Post, J. K. Pugh, A. J. Raphael, N. Reifavicius, C. R. Roberts, H. L. Rolbin, S. Rosner, L. Salzman, H. L. Schrier, H. Shankman, E. A. Shanu, I. Siegel, S. Silverman, W. H. Skinner, M. H. Slatkin, J. I. Sneider, M. Spielberg, M. Tanenbaum, P. Thambipillai, N. St. G. Wade, E. A. Wallis, H. N. Wender, M. I. Wishner, S. Zeichner.

The following graduates of recognized foreign universities were also admitted Licentiates:

K. Blond, K. K. Kcamaris, Sylvia Lerer, T. J. Peristiany, R. Salm, E. Seidenman.

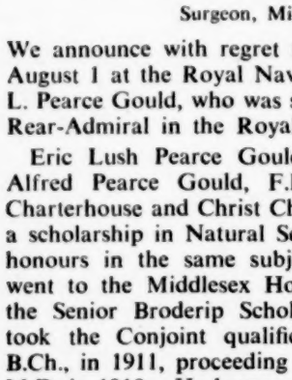
Obituary

SURGEON REAR-ADMIRAL ERIC L. PEARCE GOULD, M.CH., F.R.C.S.

Surgeon, Middlesex Hospital

We announce with regret the death at the age of 54 on August 1 at the Royal Naval Hospital, Plymouth, of Eric L. Pearce Gould, who was serving as a temporary Surgeon Rear-Admiral in the Royal Navy.

Eric Lush Pearce Gould was the second son of Sir Alfred Pearce Gould, F.R.C.S., and was educated at Charterhouse and Christ Church, Oxford, where he gained a scholarship in Natural Science and later took first-class honours in the same subject. After leaving Oxford he went to the Middlesex Hospital, where he was awarded the Senior Broderip Scholarship and Lyell Medal. He took the Conjoint qualification and the Oxford M.B., B.Ch., in 1911, proceeding to the M.Ch. in 1913 and the M.D. in 1918. He became a Fellow of the Royal College of Surgeons in 1912. He was given a Radcliffe travelling fellowship in 1913. Mr. Gould was house-physician, house-surgeon, casualty surgical officer, and surgical registrar at the Middlesex. During the last war he served as a temporary surgeon in the Royal Navy from 1914 to 1917, being stationed at Gibraltar. In 1920 he was appointed to the staff of the Middlesex Hospital and from 1925 to 1929 was Dean of the Medical School. He was President of the Medical Defence Union and a member of the Court of Examiners of the Royal College of Surgeons.



Pearce Gould tackled all branches of surgery and in many operations developed his own special procedures, as in his "darn and patch" method of dealing with hernias. His powers of speech made him a much-sought-after clinical teacher, and the example he set in the care of patients was a very high one, looking after them with meticulous care and attending himself in detail to all that made for their comfort. A man of the highest personal character, he adhered unswervingly to his convictions and was not deflected from his purpose by adverse criticism. To his students and nurses he imparted his own keenness and enthusiasm, and in this he has, as have all good teachers of medicine, left his mark upon the standards of practice in this country. He was readily accessible to all those who asked for his advice and unfailingly generous to many charities. He was a strong advocate of teetotalism and gave freely of his abilities as a writer and a speaker to the Baptist Union and temperance associations. Among his other duties he served as Editor of the *Transactions of the Medical Society of London*, and here again his sense of the exact meaning of words made his editorship a task that did not consist merely in the compiling of other men's work. He also found time to re-edit his father's well-known volume on surgical diagnosis. Before the war Pearce Gould was consulting surgeon to the Royal Navy and to the Bolingbroke Hospital, and examined in surgery at the Universities of Oxford and London. Among his publications were *Surgical Pathology* (Students' Synopsis Series), and articles on tuberculosis of lymphatic glands and on thyroidectomy in children. He became a member of the British Medical Association in 1917, and served on the Finance Committee, Tests for Motor Drivers Committee, Medical Students and Newly-qualified Practitioners Subcommittee. He was a representative at the Annual Meetings of 1930, 1931, and 1932.

We are indebted to Surgeon Rear-Admiral GORDON-TAYLOR for the following appreciation:

The untimely death of Eric Pearce Gould will come as a shock to his many friends, and the blow will fall heavily on more than one generation of Middlesex Hospital alumni, by whom he was held in great esteem. He was widely known outside the walls of his own hospital.

The name of Pearce Gould has been intimately associated with Middlesex Hospital for nearly two-thirds of a century. The son succeeded the father as surgeon to the Middlesex, and by a curious turn of fortune occupied the same wards and for a time had the advantage of the services and the loyal co-operation of the same ward sister. Throughout his surgical career Eric Gould suffered from the grave handicap of severe asthma, and the nocturnal aggravations of this distressing complaint almost invariably necessitated injections of adrenaline in the night watches. Yet illness appeared to impose no decree upon his thrust, and men marvelled that he was able to perform with almost unfailing regularity the hard work inseparable from the life of a busy hospital surgeon. His surgical interests were catholic in their scope, and might be said to range from the operative treatment of congenital hypertrophic stenosis to the mundane hernia, for the cure of which he had perhaps an extravagant affection for fascial transplants. He performed a gastrectomy with the same zeal as he approached a Smithwick operation on the sympathetic chain. His literary output was characterized by its merit rather than its abundance. The Radcliffe Travelling Scholarship gave him opportunities for postgraduate study of surgery in America and of pathology in Berlin. On his return from America he introduced into the Middlesex the principles and practice of anoci-association in surgery which he had seen in Crile's clinic. He inherited from his father, one of the greatest clinical teachers of all time, the gift of imparting knowledge. The characteristic pose of the son, the didactic finger, the earnest voice remain fixed in the memory. From the maternal side Eric Pearce Gould doubtless inherited those oratorical gifts which made him one of the best medical speakers of his day. The prepared discourse was delivered in flawless style, but he was also quick in debate and clever at repartee. In all matters he was intense; he had a passion for committees, and proved an indefatigable and capable dean of the medical school.

He worshipped God openly, as his father before him, and was wont to preach on occasion. He was especially proud of his connexion with the Royal Navy, having been consulting surgeon to this Service for several years. Like his younger brother, who was killed in France in 1918, he had served in the Navy in the last war, and now he himself has been cut off prematurely in this second European conflagration, and the Middlesex is all the poorer for the loss of Eric "P. G."

A colleague on the Council of the Medical Defence Union writes:

When Pearce Gould was first added to the council of the Medical Defence Union as a vice-president he very quickly made his mark as a committee-man of exactly the right stamp; and he graduated in a very short time to be an elected member of the council. He brought to the conference table not merely an alert intelligence and great power of concentration, as well as an expert's familiarity with every branch of modern surgery and a particular interest in the medico-legal aspects of it, but in addition a keenness over the work of the Union and a power of expressing his views both tersely and sympathetically which much adorned the wisdom of his advice. It followed in due course that when Dr. W. S. A. Griffiths intimated his desire to retire from the presidency, to which he had returned after the sudden death of Sir Herbert Waterhouse, there was unanimity among the council as to

who should succeed to the position. Gould himself knew that others had much longer records of service, and thought they might be disappointed, but when those members whose names were canvassed one after another insisted that they would not accept nomination unless he declined it, he undertook the responsibility in that spirit of earnestness which was characteristic of everything he did. In the chair he fulfilled all the expectations which he had aroused: never afraid to express a decided opinion, or to guide debate when side issues threatened to obscure the main point, yet he was always ready to give all members—especially minorities—a full hearing and to listen with an open mind to varying views. He was not one of those whose minds, once made up, nothing can change, but was always open to conviction and willing to allow himself mistaken when due cause could be shown. Above all, he was a man of high seriousness and of upright character: everyone knew that self-interest was the last thing that would ever sway his mind. The Medical Defence Union has been well served by a succession of presidents, but by none better than Eric Pearce Gould.

[The photograph reproduced is by Lafayette, Ltd.]

ANDREW GIBSON, F.R.C.S.ED.

By the death on July 25 of Dr. Andrew Gibson of Baillieston, Lanarkshire, at the age of 65, the profession loses one who was not only an extremely able practitioner, greatly beloved for his personal as well as his professional qualities by a large circle of patients, but also a man of rare general culture, widely read, and with an extensive and catholic interest in literary and historical subjects, and especially in the history of his native land, which made a strong appeal to him.

J. F. F. writes: Of a charmingly friendly and modest disposition, Dr. Gibson had literary gifts of a very high order, and was well known as a writer of delightful poetry, in which he gave his vivid—and sometimes quaint—imagination full play. Of such a high standard was his practical work that it secured for him admission to the membership of the Glasgow Ballad Club, a unique body which exists for the production of original poetry by its members, among whom might be mentioned such well-known names in the literary world as those of Neil Munro, J. J. Bell, George Eyre-Todd, and William Freeland, and Dr. Gibson's contributions to the club well entitled him to take his place with the best of them. His forte was perhaps imaginative ballad poetry, but he was a versatile writer, and his pawky verses in the braid Scots, as well as those in which he described the activities of his own profession, and poked fun at its failings, were a sheer delight to his fellow members of the club, of which he was one of the best-liked and most popular members. He was also a leading spirit in Provand's Lordship Club, which, holding its meetings in Provand's Lordship, the oldest house in Glasgow, keeps up the traditions of the olden times by means of lectures, pageants, etc., and in these Dr. Gibson took his full share, delivering many interesting and informative lectures to the club. Thus it will be seen that he was a man of many parts and of a genial and gentle disposition, so that his death after a long illness, borne with characteristic quiet fortitude, is a great loss to the many friends who knew him, and, knowing, loved him.

Dr. Gibson was a loyal member of the B.M.A. for thirty-five years, and was chairman of the Lanarkshire Division in 1926–7 and attended its meetings regularly. He was also a member of the Panel Committee during many years, and also for many years a member of the Lanarkshire Medical Practitioners' Union, and was chairman for three years. To all of these bodies he gave unstinted service.

The numerous friends of Dr. WILLIAM STRATTON of Bolsover were distressed to hear of his death following a cerebral attack and fall. Dr. Stratton had practised in Bolsover for thirty-nine years, and was widely known throughout the district. A licentiate of the Irish Colleges, he was medical officer of health for the urban district council for practically the whole of this time, and his occupancy of this responsible post gave widespread satisfaction. St. John Ambulance Association has lost one of its most indefatigable officers: he had always been a keen advocate of the teaching of first-aid principles, and was responsible for inaugurating the local ambulance brigade. Throughout his long association with such activities he was the instructor of classes and examiner in this part of Derbyshire. Dr. Stratton joined the British Medical Association in 1905 and was chairman of the Chesterfield Division in 1922–3. He was also chairman of the Local Emergency Committee of the British Medical Association. A colleague writes: Apart from his professional activities, he was to be found ever in the ranks of those who in various ways strive to promote good fellowship. An ardent musician and an accomplished pianist, he for many years conducted an orchestral and choral society, whose origin owed a good deal to his enthusiasm for music. As a supporter of the Church, few of his professional brethren could show a finer record. He was vicar's warden for many years, was a member of the church council, and always a generous supporter of the Church. His professional friends have lost a loyal colleague and his patients a kind and capable physician; and his memory will be cherished by all those who had the privilege of knowing him intimately and admiring his lovable and sympathetic character.

The late Dr. ETHELBERT REAVLEY was born at Port Robinson, Ontario, Canada. He graduated in medicine at McGill University in 1887 and practised in Ontario, in New Brunswick, in Colorado, U.S.A., and in Saskatchewan and Alberta. In 1916 he joined the R.A.M.C. in England, serving on the staff of hospitals in London and Calais, on Ambulance Train No. 43, and with the Toronto Hospital in Italy, and returned home in 1919 with the rank of captain. After the last war he practised in the Peace River country, and during the last thirteen years in Spirit River, where his care for the sick and distressed was untiring. After a long and hard country call on April 23 Dr. Reavley succumbed to cerebral haemorrhage in his eightieth year. He had been a member of the British Medical Association for forty-four years.

WAR OFFICE MEMORANDUM ON SULPHONAMIDE DERIVATIVES

The War Office has recently issued a memorandum on the use of sulphonamide derivatives which supersedes all previous memoranda on this subject. It records the various compounds in use, the principles governing their administration, and the toxic reactions which may occur, with instructions how these should be avoided or treated. Special recommendations are made for the prophylaxis and treatment by these drugs of wound infections due to streptococci and gas gangrene bacilli, and the chemotherapy of meningococcal and pneumococcal infections. The general treatment of these conditions is not mentioned except in so far as it is concerned with the pharmacological and toxic actions of the drugs used. Sulphapyridine is recommended for the treatment of gonorrhoea, cerebrospinal meningitis, pneumonia and pneumococcal meningitis, staphylococcal septicaemia, and gas gangrene; and sulphanilamide for the prophylaxis of wound infections, and the treatment of erysipelas and cellulitis, meningococcal carriers, wounds known to be infected with haemolytic streptococci in the acute phase, follicular tonsillitis, otitis media, and *B. coli* urinary infections. It reminds readers of the following synonyms for sulphanilamide—sulphonamide P, prontosil album, streptocide, colsulanyde, supplied in tablets of 0.5 gramme; and the synonyms for sulphapyridine—M & B 693 and dagenan, supplied in tablets of 0.5 gramme. The memorandum is on sale at H.M. Stationery Office at the price of 2d.

V. Mayer (*Thèse de Paris*, 1940, No. 42), who records nine cases in patients aged from 64 to 81, states that lymphatic leukaemia in old age does not present the same clinical or haematological picture as in the young. Its course is slow and characterized by a good condition and a longer survival than in young persons. The leukaemia is not excessive, the leucocytosis not exceeding 15,000. Radiotherapy has a good effect, not only on the general condition and anaemia, but also on the leucocytosis. When death takes place it is often due to complications, especially in the lungs.

Medical Notes in Parliament

Purchase Tax on Drugs and Appliances

During the debate on the second reading of the Finance Bill in the House of Commons on August 6 Mr. SALT raised the question of the effect of the Purchase Tax on the cost of drugs, medicines, and surgical appliances. He said he was told on excellent authority that 97% of the surgical appliances industry was taken up by working for the war and for Government Departments. When they realized that the hospitals and other charitable organizations used such a tremendous amount of the remainder, it was obvious that the machinery needed to calculate the amount of the tax would cost so much that it would destroy the value of the tax almost, if not quite, in its entirety. He had been pleased to hear, earlier that day, that spectacles were to be placed on the free list. It would be well to leave surgical appliances free. In the exempted list were mentioned "medical and surgical appliances and essential drugs of an exceptionally costly character," but one could not easily assess what was costly, because it depended on the person purchasing the article. Many had to buy things such as belts and trusses, and it was well known in the trade that a man who worked in an industry where the heat was great must have an exceptionally costly appliance, otherwise it would not endure the heat. Matters of that kind, which were quite technical, made a great deal of difference. He hoped that this matter would be considered and that drugs and appliances which were almost entirely for use by the hospitals or Government Departments would be put on the free list.

Captain CROOKSHANK, replying to Mr. Salt, said that the Government had been able to get a definition of drugs of a specially costly character. It had been drawn up by the Ministry of Health in consultation with eminent medical men, who had agreed on the list, and he hoped that the House would not want to disturb a somewhat unusual thing—a complete medical agreement. It included drugs which were themselves costly, such as special injections for rheumatism and M & B 693 for pneumonia, sera, and expensive drugs which had to be used for very long periods, if not for life. The reason that insulin and other extracts were mentioned was not only that they were costly but that they had to be used for long periods. As regards appliances, these included artificial limbs and spinal jackets, so that Mr. Salt could rest assured that it was possible to find a list and come to a definition which was agreed.

Emergency Medical Service

On August 1 Mr. MACDONALD told Sir Ernest Graham-Little that the committee presided over by Mr. Colville had reported on the provincial arrangements for the Emergency Medical Service. It recommended certain administrative changes, which he had adopted. These changes consisted mainly in devolving more authority upon his senior regional officers, who would work in closer collaboration than hitherto with the hospital officers in each region, and would be able, if necessary, to give formal directions to the hospital authorities. Another change had been a closer liaison, both centrally and locally, with the medical branches of the Services and the formulation of plans for common action in certain contingencies. As to London, Lord Chatfield, who had succeeded Mr. Colville, and the other members of the Commission had reported verbally that week and recommended certain changes in the administrative organization and in the arrangements for first-aid posts. These changes Mr. MacDonald was then considering with his advisers.

Rehabilitation of Wounded

In a reply to Sir Ernest Graham-Little on August 1 Mr. MACDONALD said occupational therapy was provided for wounded men at the special orthopaedic centres forming part of the emergency hospital scheme administered by the Secretary of State for Scotland and himself, as well as at Ministry of Pensions hospitals and the fracture or orthopaedic departments of a number of general hospitals in the scheme. Arrangements to develop a national system of rehabilitation were being considered in concert between the Ministries of Health and of Pensions and the Department of Health for Scotland, with the appropriate professional experts. The aim was to secure a co-ordinated system of rehabilitation designed to produce the maximum restoration of working capacity.

EPIDEMIOLOGICAL NOTES

Infectious Diseases for the Week

During the week in England and Wales and London there were increases in the incidence of measles and scarlet fever, which are now widely distributed in both urban and rural areas; the notifications of the latter disease are still much below the level recorded at the corresponding period last year; the former was not generally notifiable until November 1, 1939. Cerebrospinal fever, enteric fever, and acute poliomyelitis have declined in incidence.

Measles.—The figures for measles are high generally, but still low for certain large centres of population, such as London (32), Birmingham (57). Manchester (517) and Liverpool (255), on the other hand, have been involved in the epidemic which has been spreading over both urban and rural districts in the county of Lancaster for over three months and shows no signs of abating. At present all the administrative public health areas are involved with the exception of the small and rather isolated counties of Anglesey and Radnor. Counties chiefly affected in order of incidence, not corrected for population of susceptible age, are: Lancaster 2,330 (Manchester 517, Liverpool 255, Salford 134, Southport 92, Chorley M.B. 66, Irlam U.D. 50); Yorks, West Riding, 1,197 (Bradford 98, Leeds 83, Doncaster 81, Barnsley 65, Dearne U.D. 75, Spenborough and Stanley 39 each, Rotherham R.D. 26); Derby 618 (Derby 75, Ilkeston M.B. 84, Long Eaton U.D. 157, Chapel-en-le-Frith R.D. 74); Durham 550 (Gateshead 30, Chester-le-Street U.D. 101, R.D. 59, Consett U.D. 77, Stanley U.D. 52); Notts 449 (Nottingham 116, Beeston and Stapleford U.D. 86, Mansfield Woodhouse U.D. 53, Southwell R.D. 51); Leicester 431 (Leicester 257, Loughborough M.B. 31, Blaby R.D. 55); Northumberland 389 (Newcastle 203, Tynemouth 53, Blyth M.B. 51); Chester 251 (Birkenhead 22, Stockport 32, Wallasey 39, Bebington M.B. 40); Lincoln (Lindsey) 205 (Grimsby 72, Lincoln 59); Northampton 203 (Northampton 51, Wellingborough U.D. 39, Oundle and Thrapston R.D. 47). The disease is evidently mild, as only 5 deaths from measles were registered in the great towns; on the other hand, in Scotland double the number of deaths were recorded among less than one-tenth of the number of cases. Burghs chiefly affected were Glasgow 282, Edinburgh 181, Greenock 126, Kirkcaldy 87, Dunfermline 68, Port Glasgow 46, Ayr 39, Paisley 32.

Scarlet Fever.—Scarlet fever is relatively more widely distributed than measles in comparison with total incidence, and in four areas is of epidemic proportion. Counties and districts chiefly affected were: Lancaster 189 (Liverpool 43, Manchester 17, Failsworth U.D. 9); Yorks, West Riding, 109 (Leeds 11, Sheffield 9, Doncaster and York 8 each); Stafford 70 (Burton-on-Trent 14, Stoke-on-Trent 5); Warwick 68 (Birmingham 40, Coventry 11); Leicester 50 (Leicester 31, Blaby R.D. 12); Glamorgan 45 (Swansea 4, Ogmore and Garw U.D. 14, Rhondda U.D. 9); Middlesex 44 (widely distributed in M.B.s and U.D.s); Surrey 41 (Carshalton U.D. 5, Sutton and Cheam M.B. 7); Monmouth 32 (Ebbw Vale U.D. 22).

Enteric Fever.—London and the Home Counties are the chief centres for this disease, but it remains widely distributed among twenty-three administrative areas, in only nine of which were there more than 2 cases recorded in the week—namely, Essex 10 (West Ham C.B. 1, Dagenham M.B. 3, Harwich M.B. 1, Ilford and Romford 2 each, Hornchurch U.D. 1); London 6 (Greenwich and Shoreditch 2 each, Hammersmith and Wandsworth 1 each); Middlesex 6 (Edmonton M.B. 5, Ealing M.B. 1); Worcester 5 (in rural districts of Bromsgrove 1, Martley 2, Upton-on-Severn 2); Yorks, West Riding, 5 (Bradford, Sheffield, York 1 each, Bingley U.D. 1, Settle R.D. 1); Cumberland 4 (Carlisle 3, Wigton 1); Surrey 3 (Croydon 1, Coulsdon and Purley U.D. 2); Warwick 3 (Birmingham 2, Coventry 1). There were no deaths from enteric in the great towns during the week.

No. 29

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 20, 1940.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1940					1939 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	177	14	57	1	4	28	5	10	—	—
Deaths		1	2				—	—		
Diphtheria	818	25	214	33	28	870	66	110	30	17
Deaths	23	2	6	1	—	13	2	4	—	—
Dysentery	87	—	40	—	—	30	5	24	—	—
Deaths			—	—	—			2	—	—
Encephalitis lethargica, acute	3	—	—	—	—	4	—	1	1	—
Deaths		—	—				1	1		
Enteric (typhoid and paratyphoid) fever	65	6	12	5	2	21	6	7	8	1
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas		23	39	3	2		29	35	5	2
Deaths		—	—				—	—		
Infective enteritis or diarrhoea under 2 years										
Deaths	23	5	5	9	7	36	11	5	4	7
Measles*	9,892	32	888		26		50	38		6
Deaths	5	—	12	—	1	2	—	1	—	—
Ophthalmia neonatorum	113	9	31		—	92	6	24		—
Deaths										
Pneumonia, influenzal†	434	23	5	5	9	474	27	6	—	3
Deaths (from influenza)	6	1	1	—	5	6	—	2	—	1
Pneumonia, primary			139	13				132	14	
Deaths‡		13		3	5		9		9	8
Polio-encephalitis, acute	5	—				2	—			
Deaths		—					—			
Poliomyelitis, acute	18	—	3			16	6	1		—
Deaths		1	—				—	—		
Puerperal fever	2	2	13	3	—	6	6	9	2	—
Deaths		—					1§			
Puerperal pyrexia	166	10	12		3	188	19	27		—
Deaths										
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,343	28	132	29	57	1,925	191	180	52	55
Deaths	—	—	—	—	—	1	—	1	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	7	3	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough*	878	11	35		16		211	35		9
Deaths	3	1	2	—	2	8	2	3	—	—
Deaths (0-1 year)	265	36	56	24	24	262	52	53	26	21
Infant mortality rate (per 1,000 live births)						41	47			
Deaths (excluding still-births)	3,936	576	543	150	144	3,738	670	558	176	152
Annual death rate (per 1,000 persons living)			11.0	10.0	12.6	9.2	8.6	11.3	11.8	13.4
Live births	5,869	850	835	393	242	6,177	1,027	904	326	317
Annual rate per 1,000 persons living			16.9	26.2	21.2	15.2	13.2	18.3	21.9	27.8
Stillbirths	224	31	38			213	40	46		
Rate per 1,000 total births (including stillborn)			44			34	32	48		

* Made notifiable generally on November 1, 1939.

† Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

‡ Since January 1, 1940, figures for London (b) have been for deaths from all forms of pneumonia; the corresponding figures for 1939 relate to deaths from lobar pneumonia only.

§ Death from puerperal sepsis.

THE PURCHASE TAX AND MEDICINES

The present proposals in the Finance (No. 2) Bill are that medicines and appliances except those "of an exceptionally costly character" are to be liable to tax at the rate of 16⅔%. It is understood that the Treasury will issue a list of exempted drugs and appliances after the Act has been passed, but it is observed that failure to issue such a list in advance precludes adequate Parliamentary criticism. The Pharmaceutical Society of Great Britain has pointed out that whether an article is costly depends upon the resources of the consumer, and if only high-priced drugs are to be exempted the effect of the exemption will simply be to increase the cost of medical and surgical articles of average price to those who can ill afford to pay for them. It therefore submits that the exemption should be amended as follows: "Drugs and medicines; surgical dressings; medical, surgical, dental, and dissecting instruments; medical, dental, and surgical appliances." The Select Committee on Medicine Stamp Duties which reported in 1937 recommended, among other things, exemption from taxation of "all preparations, etc., supplied to registered medical or dental practitioners for use in the discharge of their professional duties, also all preparations, etc., supplied to registered pharmacists or registered medical or dental practitioners for use in dispensing as a component part of medicines prescribed by such practitioners."

Medical News

The Editor of the *Medical Directory* (194, Gloucester Place, Portman Square, W.1) asks members of the medical profession who have not communicated to him their present addresses to give this information without delay, otherwise the words "address uncommunicated" will appear in lieu of an address in the forthcoming 1941 issue.

A demonstration of plaster technique will be given by Lieut.-Colonel St. J. D. Buxton, F.R.C.S., and Mr. H. L. C. Wood, F.R.C.S., at the British Postgraduate Medical School, Hammersmith, on Friday, August 16, at 2.30 p.m. Admission will be free to all those interested in the subject. Applications for tickets should be addressed to the Dean, British Postgraduate Medical School, Ducane Road, London, W.12.

The Home Office issued last week as a White Paper (Cmd. 6217. H.M. Stationery Office, 1d.) "German and Austrian Civilian Internees: Categories of Persons Eligible for Release from Internment and Procedure to be followed in applying for Release." The Home Secretary is now prepared to consider the question of releasing from internment category "C" Germans and Austrians interned in pursuance of general directions who fall within one or other of eighteen categories. Nevertheless the release of a person who falls within one of the categories may be refused on security grounds. Category No. 8 includes "scientists, research workers, and persons of academic distinction for whom work of national importance in their special fields is available." (Applications to be submitted through special committees set up by the Vice-Chancellors of the Universities, the Royal Society, and the British Academy.) No. 9 includes "doctors of medicine and dentists who have been authorized by the Secretary of State to exercise their professions in this country." (No special procedure in making applications is necessary in such cases.) No. 10 includes "doctors and dentists who have been permitted by the Secretary of State to study in this country for British degrees and who were pursuing their studies to that end." (Application for release should be supported by evidence that the internee was pursuing a course of studies before internment.) Applications for release should be made in writing and sent to the Under-Secretary of State, Aliens Department, P.O. Box 100, Paddington District Office, London, W.2.

The Government has accepted the generous offer of the Kumasi (Gold Coast) Public Health Board of a loan of £5,000 free of interest for the duration of the war.

According to a New York report, the population of France is to be inoculated against the spread of epidemics. The Pasteur Institute is undertaking the inoculation against typhoid of all refugees and the population of the occupied zones.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS of their articles must communicate with the Secretary, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (hours, 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and subscriptions should be addressed to the Secretary.

TELEPHONE NO.—B.M.A. and *B.M.J.*: EUSTON 2111.

TELEGRAPHIC ADDRESSES.—EDITOR, *Aitiology Westcent, London;* SECRETARY, *Medisecra Westcent, London.*

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

QUERIES AND ANSWERS

Hairy Legs in a Girl

"CIVIC" asks if any colleague can help him with suggestions for the removal from the lower limbs of a young female patient of a healthy growth of hair. He understands that the melted wax method is that usually practised at the beauty parlour.

Income Tax

Employment—Purchase of Books

"W. J. M." holds a hospital appointment and has been refused a deduction for the expense of buying books to replace previous editions. Is this correct?

*** In the case quoted (Simpson *v.* Tate) the cost of subscriptions for the purpose, *inter alia*, of obtaining current medical literature was refused. The claim to deduct the cost of books seems to be no stronger. The tendency of the court is to distinguish between expenses incurred while carrying out the duties—that is, travelling between different clinics—and expenses incurred to maintain professional knowledge and skill—deduction of the latter being refused.

Dissolved Partnership

A., B., and C. are partners with equal shares. The accounts have been prepared to December 31 each year. The partnership was dissolved as from June 30 this year, each doctor continuing to practise on his own in the same town. What procedure should be followed?

*** The firm will have been assessed for 1940–1 on the basis of their 1939 profits. This assessment will have to be adjusted to the amount of the profits of the period April 5 to June 30, 1940, and an account for the six months to the latter date will be required to enable that adjustment to be made. Further, if the profits for the year to April 5, 1940—arrived at by adding half the profits of the six months to June 30, 1940, to three-quarters of the profits for the year to December 31, 1939—are greater than the amount of the 1939–40 assessment the Revenue authorities can increase that assessment accordingly. As from June 30 the firm ceases to be chargeable to tax, and there is no "succession" as the practice has been divided. Consequently each former partner is liable from that date as if he had started a new practice—that is, for the first year on the actual earnings of the year, and afterwards on the basis of the previous year subject to the usual option as regards the second and third years.

Certified Accounts

"M.R.C.S." has been requested to supply "a certified copy" of his accounts for the last financial year. Since the practice was taken over six years ago the inspector of taxes always accepted a statement without an accountant's certificate.

*** In a case heard in 1928 the court supported Commissioners who in dealing with an appeal in which business profits were concerned had required accounts certified by a qualified accountant. The calculation of professional profits is, however, a much simpler matter, and insistence on an outside certificate does not usually arise in such cases. We recommend "M.R.C.S." to send in his statement of account certified as correct by himself; if a specific request for audit by an accountant is received the inspector might be asked—for example, at an interview—why that request is made in view of the common practice of accepting accounts signed by medical practitioners themselves.

LETTERS, NOTES, ETC.

Home-made Device for Protection of Ears in Air Raids

Dr. JAMES GRAY (Munlochy, Ross-shire) writes: My request for publication of the following description of an A.R.P. device is not prompted by any desire to lay claim to originality with regard to it but rather because (1) of its simplicity, cheapness, and comfort in use—even after prolonged periods of application to the head; (2) it can be made at home by the merest tyro in the use of his hands; (3) it affords adequate protection in the absence of a specific device. Procure (1) a light sponge-rubber loofah of usual size sold—namely, 5½ in. long by 3½ in. wide by 1½ in. thick—and (2) a length of inch-wide elastic band sufficient to go round head and face, making allowance for means of attachment. With a sharp knife cut the loofah through the middle into two equal parts each measuring 3½ in. by 2½ in. by 1½ in. Stitch these pads to the elastic band at requisite distances apart so that when applied to the head they will cover both ears. Strap device over head and under chin, adjusting the pads over the ears so that it is comparatively tight, and fasten under chin or at side of head. Anterior and posterior straps of lesser width may, if desired, be added to give additional support, but these are not essential. In conjunction with the use of these pads the ears should be plugged with cotton-wool. Experiments with a 12-bore shotgun (the only means of experiment at my disposal) discharged close to the head convince me that this device will prove of very material help.

Acute Appendicitis in a Baby

Dr. E. S. GORDON writes with reference to Dr. M. C. Andrews's note (July 13, p. 72) on a case of acute appendicitis in a child of 14 months: About fifteen years ago I had such a case in a baby aged exactly 9 months. As in Dr. Andrews's case there was a sharp rise of temperature and much tenderness in the right iliac fossa. The patient was sent into the Royal Hospital for Sick Children, Edinburgh, with a diagnosis of acute appendicitis. This was confirmed when on opening the abdomen the surgeon found a well-defined appendicular abscess. Incidentally, the surgeon reporting the case stated that this was the youngest patient on whom he had operated for such a condition.

Rheumatism and Climate

Dr. C. M. HEANLEY (Salisbury, Rhodesia) writes: The letter in the *Journal* of April 6 (p. 589) signed A. V. Pestana needs an answer. I was present at more than 6,000 post-mortems in Hong Kong between 1906 and 1930 and never saw a case of mitral stenosis. I spoke to men of long experience, and the gist of their replies was that in Hong Kong rheumatic fever is due to the gonococcus. Hong Kong has often been called a suburb of Canton, and Canton at the junction of the main highways—East, West, North, and Pearl Rivers—is highly representative of Kwang Tung and Kwang Si. I used the term "South China" in the sense that a Hong Kong man often uses it: mountainous Yunnan and extratropical Fukien were not in my thoughts.

Medical Certificates: The Need for Care

Dr. M. G. FITZGERALD (Twickenham) writes: Dr. R. R. Willcox's letter (July 20, p. 100) prompts me to emphasize the great responsibility of doctors in issuing certificates and to urge that we exercise the greatest care in doing so. These few examples illustrate the type of certificate asked for: (1) A fit man or woman in the Forces wants to extend leave and comes for a "doctor's certificate." These are easily dealt with by pointing out that to do so cuts short someone else's leave, and, if they still persist, to say that they must go to the nearest military hospital. (2) Mrs. A. says or thinks she is so bad that a "doctor's certificate" is wanted to get husband or son home. (3) A. wants a certificate "that night work doesn't suit him or her." (4) "I was not well yesterday, so must have a certificate to show the works." Most of these cases can be dealt with by explaining to, and reasoning with, the people, and in fairness to the British public I can say that in a large mixed practice, including the work of absent practitioners, the cases are few and far between, but are important all the same.

Snapshots of the Bart's Staff

Candid Camera is the title of an irreverent collection of photographs of members of the Bart's teaching staff by Charles Fletcher and others, for the most part reproduced from the pages of *St. Bartholomew's Hospital Journal*. The victims of the snapshot camera are shown in unguarded moments and the joke is heightened by the caption. To make sure that every loving libel gets home a key appears at the end of the pamphlet. No one is let off lightly in this impish portrait gallery, except Sir D'Arcy Power and here and there a student in the background. There must be many of our readers who would like to know about it. Copies (price 2s. 3d., post free) can be had from the editor of *St. Bartholomew's Hospital Journal*, London, E.C.1.